



Herman Titov

700,000
KILOMETRES
THROUGH SPACE





Moscow, August 9, 1961. Nikita Sergeyevich Khrushchov and Herman Titov at Vnukovo Airport

HERMAN TITOV

Hero of the Soviet Union

700,000
KILOMETRES
THROUGH SPACE

Notes by Soviet Cosmonaut No. 2

FOREIGN LANGUAGES PUBLISHING HOUSE
M O S C O W

As told to S. BORZENKO, N. DENISOV, *Pravda* special correspondents and F. VAZHIN, M. GOLISHEV, I. SHIPILOV, *Air Force Herald* correspondents.

Included in the book are the stills from the film taken by cosmonaut H. Titov in space, stills from the documentary "Again to the Stars", photographs from Herman Titov's family album, and those taken by V. Baburin, V. Bazanov, S. Korshunov, A. Lyapin, O. Lebedev, G. Omelchuk, A. Pakhomov, A. Sergeyev, A. Sofiisky, I. Snegiryov, A. Ustinov, A. Shevich, and by TASS photo-correspondents.

Edited by N. Kamanin, Lieutenant-General of the
Soviet Air Force

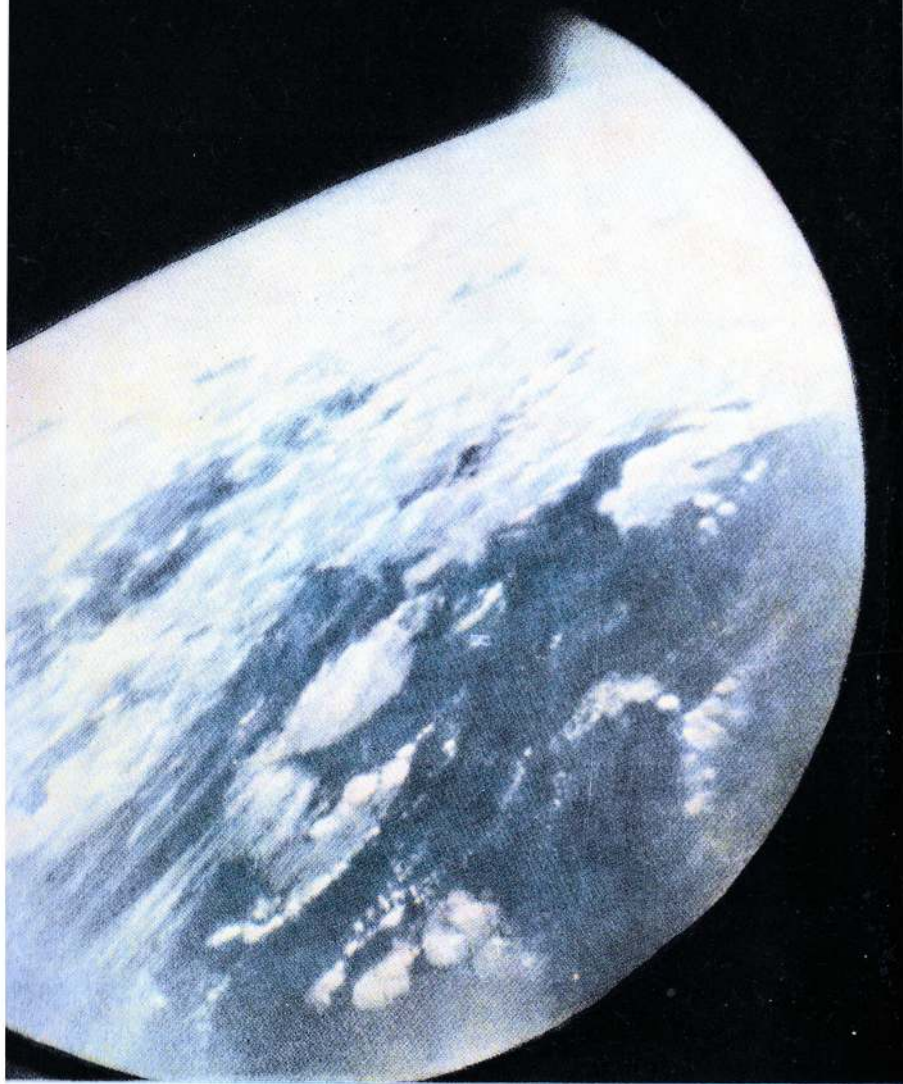
Translated from the Russian by R. DAGLISH

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Herman Titov on his way to the launching site



The Earth photographed by Herman Titov from space

P R E F A C E

Man's first flight into outer space was made by Major Yuri Alexeyevich Gagarin, a Communist and citizen of the Soviet Union. The second leap into those boundless expanses was made by Major Herman Stepanovich Titov. For 108 minutes, and then for 25 hours 18 minutes, these two men flew in outer space, orbiting our planet at an enormous height in their spaceships *Vostok* and *Vostok-2*. The achievements of Yuri Gagarin and Herman Titov are immortal and humanity will for ever acknowledge with gratitude the Soviet men who made these first voyages across the boundless ocean of the Universe.

After his flight, Yuri Gagarin wrote the book *Road to the Stars*, which has been translated and published in many countries. Herman Titov has now related his experiences in *700,000 Kilometres Through Space*. As with Yuri Gagarin's account of his flight, it is hard to overestimate the value of Titov's book. This is the authentic story of the first man to spend more than one whole day in space. His flight, like Gagarin's, was dedicated to the Twenty-Second Congress of the C.P.S.U., the congress of builders of communism.

The lives of cosmonauts Yuri Gagarin and Herman Titov, and of their comrades also dedicated to the exploration of the outer regions of the Universe, have much in common with the lives of many thousands of

Soviet people who are pioneering virgin land, building factories, blast-furnaces and towns, with the life of our young people in general. This Soviet pilot, Herman Titov, once a Young Pioneer and member of the Young Communist League, is now a son of the great Party of Lenin. The Soviet system gave him wings, educated him to be strong and brave, worthy of the age that is building communism. In *Road to the Stars* Yuri Gagarin described his friend Herman Titov in one sentence: "He underwent the same training as I did and he is probably capable of doing more."

The flight made by Cosmonaut No. 2, Herman Titov, was an exceptionally difficult one because of its duration and the scientific assignments involved. Cosmonaut Titov performed the task his country had set him and performed it well. The significance of his flight could scarcely be described more precisely or more vividly than it was described by Nikita Khrushchov in his Red Square speech: "The flight of Comrade Cosmonaut Titov in the spaceship *Vostok-2* is not simply another achievement of Soviet scientific and technical thought, not simply a feat of daring and courage by a Soviet man. It is a fact of tremendous portent. It epitomises the power of our first-class industry, the highest achievements of Soviet science and engineering, and the beneficial, vitalising strength of the Soviet system, which brings to light the talents and abilities of the masses and gives man genuine freedom for creative work and inspiration."

The author of *700,000 Kilometres Through Space* gives a detailed and interesting account of the way he grew up, of his education by the Y.C.L. and the Party, of the preparations for his space flight and how he made it, of what he saw and felt as he circumnavigated our planet seventeen times at a height of more than 200 kilometres. He speaks with warmth and affection of

his comrades, his commanding officers and of those who taught him how to live. He convincingly shows how necessary his fighter pilot's skill proved to be both during preparations for the flight and during the flight itself.

On many occasions Titov refers with gratitude to the Chief Constructor of the spaceship and to the Theoretician of Cosmonautics, and to the other Soviet scientists, engineers and workers who built our powerful rockets and amazing spacecraft and equipped them with everything required for manned flight in space. Like his close friend Yuri Gagarin, like all Soviet space pilots, Titov attributes the development of the Soviet rocket industry, the successes of our cosmonautics primarily to the enormous organisational and creative work of Nikita Sergeyevich Khrushchov, First Secretary of the Central Committee of the C.P.S.U., Chairman of the Council of Ministers of the U.S.S.R., and with good reason calls him the initiator of the space age.

With tremendous faith that there will be new splendid achievements of Soviet cosmonautics, which will serve the cause of peace, the cause of a bright communist future for all humanity, Herman Titov ends his book with the words of Nikita Krushchov: "The time is not far distant when manned spaceships will blaze the way to the Moon, to the planets of the solar system."

This exciting and well-written book by Herman Stepanovich Titov, Hero of the Soviet Union, Cosmonaut of the U.S.S.R., will, I am sure, be read with great interest by people all over the world.

K. VERSHININ,
*Chief Marshal of the Soviet
Air Force*



Moscow, August 9, 1961. Hero's welcome for Herman Titov at Vnukovo Airport



Leonid Brezhnev, Chairman of the Presidium of the Supreme Soviet of the U.S.S.R., decorates Cosmonaut of the U.S.S.R. Herman Titov with the Order of Lenin and the Gold Star of Hero of the Soviet Union

Herman Titov receives his Communist Party membership card





At the press conference at Moscow University M. V. Keldysh, President of the Academy of Sciences of the U.S.S.R., presents Herman Titov with the Tsiolkovsky Medal

K. A. Vershinin, Chief Marshal of the Soviet Air Force, with Cosmonauts of the U.S.S.R. Yuri Gagarin and Herman Titov



A Cherished Dream

We live in a heroic age. Every Soviet citizen is striving to bring credit to his country through his work. Endeavour in the name of the Land of Socialism is something that people educated by the Communist Party feel as an organic need. Ever since my childhood, spent in the stern Altai country among farmers descended from the daring partisans of Siberia, I have been fascinated and instructed by the astonishing lives of our popular heroes.

My generation has always loved Vasily Blücher, Sergei Lazo, Stepan Vostretsov and the many other daring fighters for Soviet power in Siberia. We respected the people who distinguished themselves during the first five-year plans, and those who defended their country in the fierce battles of the Second World War, whom many peoples of Europe recognise as their liberators. The pioneers of the virgin lands of the Altai also stirred our interest and affection. We have always wanted to do something heroic ourselves. Even at school, when none of us yet knew how to apply his energy, we all longed to be able to do something that would bring honour to our country.

I remember an incident from the far-off days of my childhood. I was sitting with my father under a canopy

of branches listening to the wind whispering in the pine-trees. My father was chewing a blade of grass and telling me in his quiet slow way about some of the things that happened back in the 'twenties. Still too young to understand properly what he was talking about, I kept asking him questions.

"What's a kulak, Dad? What do you mean by a Nepman?"

My father gave me a look of surprise and started telling me how the new life came to our district. Bit by bit I learned the history of our village.

The little settlement where I first came into the world is known as the Village of the Communards. In the 1920s some partisans of the civil war, poor men fired with Lenin's ideas of collective work, founded a commune in the heart of the wild Siberian taiga. Both my grandfathers, Mikhail Alexeyevich Nosov and Pavel Ivanovich Titov, were among those who ploughed the first furrow of the common field, who laid the first logs of the houses of the Communards.

The fighting spirit of the Communards was not broken by bandit bullets or by the threats of kulaks. Their commune grew steadily, winning over more and more working farmers to its way of life. Once the poorest in the countryside, these men broke the backbone of the kulaks, wrought an upheaval in rural affairs and gave it new moral standards, a new way of life.

In the course of time the Communards gave the community they had founded a name. They called it "May Morning", for this was indeed the morning of a new era, a new dawn for working people. The new life, with its busy days, its joy of achievement, had come. My father, whose father, grandfather and great grandfather had all been poor men, and who under capitalism would inevitably have known a life of misery,

poverty and hardship, straightened his back when he became a member of the commune and stepped out confidently on the path that had been opened up by the Great October Revolution. He became a school-teacher, an educated man. The Communist Party led him and his like, all the working people, to a new life.

I have great affection for my father. He has been for me in many ways a model of the man who knows what he wants to do and how to do it, and who achieves much in life. My father spent his life studying. Thanks to him, I have a deep respect for his generation and know how much it accomplished, how it gave the country a first-class socialist industry, organised the collective farms and defeated Hitler Germany.

My young mind could not at first grasp the full tragic meaning of the word that echoed through the village in June 1941—war! Worried faces, anxious eyes. In many a house the women were sobbing their hearts out. But there was no loss of spirit, no confusion. People braced themselves to face the ordeal. During the war I went out with my mother to work in the fields and did what I could to help in the house.

In those days, when our country was in mortal danger it was the Party that organised and inspired the people to fight the fascist invaders. I didn't realise this till I grew a little older and gained a deeper understanding of events. The only thing I really remember about the war was the way the Communists were the first to shoulder their haversacks, and go off to the front.

My school-days were full of the joy of discovery. I knew success and anxiety. I had a lot of fun and, I must admit, I was often naughty. Quite suddenly the eldest of my friends seemed to grow up and joined the Young Communist League. How impatiently the rest of us counted first the months, then the weeks and days before we were old enough to be accepted. We studied

the Y.C.L. rules with all the enthusiasm of youth. And at last the first great day in our young lives arrived. I got my Y.C.L. card! It made me feel very grown up.

Lenin's wish that the young generation should dedicate itself to learning became a motto for me and others of my age. The subject the Party urged us to study was the finest subject on earth—communism.

What did it mean to me then? What does it mean now? Above all, an honest attitude to everything in life, and the ability to put one's strength and energy to good use. Studying is not merely a matter of getting high marks at school, although that is a very important factor. One must feel a constantly growing sense of responsibility to one's country, to one's people.

Gradually we formed in our minds a conception of what a true Communist, a leader of the masses, should be. We felt the influence of the Communists among us at every step in our lives. With their example to follow, we, members of the Y.C.L., tried to be worthy of our calling. At school we mastered the elements of science, took an interest in machines, did what we could to help the farm. Taking part in various study groups, driving lessons, amateur dramatics, sport filled our lives.

Like all Soviet youngsters I had many paths in life open to me. In our country every profession is honourable and can be interesting in its own way. I chose to be an airman. I dare say what influenced me most was meeting and talking to my uncle Alexei Nosov, a veteran fighter pilot of the Second World War.

I have always loved machines. When I had the chance of going to a flying school I jumped at it. I'll become an air force pilot, I thought, and, like Alexander Pokryshkin (a famous pilot from our part of the country) and thousands of other air force men, I shall guard the skies of the Soviet Union. I must admit, however, that it took me a lot of energy and work to get my wings.

Then, as now, aviation was making rapid progress. Jets had ousted piston engines. Pilots were out to crack the sound barrier and the latest aircraft could reach great heights and fly enormous distances. Even the most daring dream seemed realisable.

I owe very much to those who taught me the ABC of flying, who took me up on my first flights, who patiently and persistently made a pilot of me. I am grateful to them for all they did. When I remember my instructors I again feel the fatherly warmth of their handshakes. The best of them were Communists. These rank-and-file Party men who trained us young fliers did their job well. We owe them everything we ultimately achieved as qualified fighter pilots.

I remember the years I spent in a famous Guards regiment of the air force. That was my coming of age. I was a Y.C.L. member and the comradeship of that regiment did much to give me the qualities I needed as a Communist.

Right from the start we were told about the regiment's history, its fine fighting traditions. We heard about the Heroes of the Soviet Union the regiment had produced and we tried to be worthy of those great names and hold high the banner of the regiment.

I was lucky enough to be drafted to one of the stations in the Leningrad Military Area. It was a great joy to me on my days-off to be able to visit Leningrad, where there is so much to remind one of Vladimir Ilyich Lenin. I felt I was reliving all that I had read and heard about this fine city, the cradle of the revolution, and about its great leader. Finland Station, Smolny Palace, the cruiser *Aurora*, the Neva—they became a part of me.

Lenin! Ever since I have been old enough to think I have had a picture in my mind of that great man. I

was told about him by my father and mother, I read about him in my first school-book. Lenin and his comrades-in-arms, the old Bolsheviks, the men who led the people against tsarism, who defended Soviet power, have always been my ideal in life. There is probably not a single place in the city connected with Lenin's name that I did not visit in those days.

The regiment gave us a warm welcome and made us feel at home. Our instructors were skilled and experienced pilots, Nikolai Podosinov, Stepan Shulyatnikov, Nikolai Stepchenkov, Alexander Kharchenko and Vyacheslav Petrovsky, all of them Communists. With great patience and kindness they passed on to us their knowledge and their flying skill, and saw to it that we made as few mistakes as possible.

The Party organisation was led by an experienced Communist, Nikolai Pivovarov. We Y.C.L. members learned much from him about Marxism-Leninism, about having a communist attitude to one's work.

At this unit we learned to fly a type of jet that was new to us. First we had to study the theory and construction of the aircraft. This took several weeks but we were so keen to get into the air that we studied hard and the time passed quickly. Once we started flying, we went up regularly in all weathers.

Having become a fighter pilot, I began seeking new goals. I wanted first-hand experience of the latest machines—spacecraft. By this time our Soviet sputniks were in orbit. The rocket age called for people who could fly much faster, higher and further than we ordinary jet pilots. It was the tremendous achievements of Soviet science and engineering, which we all followed with intense interest, that gave me the idea of becoming a spaceman. This meant changing the whole pattern of my life, acquiring a mass of fresh knowledge and preparing myself physically and morally.

In my view, being a pilot is the best preparation for space flight. The jet plane and the spacecraft have much in common. Both are complex pieces of machinery and to fly them one must have special technical knowledge and handling skills. Flying in jets accustoms a pilot to high speeds and gravity forces and teaches him to orient himself in space by means of instruments. He acquires rapid responses, precision and a capacity for quick thinking.

The basic qualities needed for space flight are inculcated in the air force.

When I went into training with a group of space pilots I seemed to start life all over again. These were men who had kept the fire of youth, men who were living not only in the present but in the future.

Our group was preparing intensively for the first manned space flight. We were all studying and undergoing special training to accustom our bodies to phenomena unknown on Earth. It was a race against time and we could not afford to waste a single day. We entered a new and fascinating world that we had never known before. We met outstanding people of our age, the scientists, designers and engineers who build the Soviet spacecraft and organise the flights they make.

None of us will ever forget our first meeting with the Chief Constructor, a man of tremendous will-power and wide erudition. He personally showed us the first spaceship, conceived and designed by many teams of scientists, brought into being by the genius and labour of our people. Every word that amazing man spoke enriched our knowledge and widened our mental horizons.

When the time came for the *Vostok* to be launched with a man on board and the question arose of who was to be first into space, two of us were selected—my friend Yuri Gagarin and myself. We were both

thoroughly trained for the flight. I was Yuri Gagarin's double and stood by in complete readiness at the cosmodrome till the *Vostok* had been launched and gone into orbit. This event took place in the morning of a day that the world will always remember—April 12, 1961.

It was a tense moment. I was astonished at Yuri Gagarin's assurance and self-control and thrilled by the beauty of the rocket as it fought gravity on the launching pad, then swept up into regions beyond the sight of man. We cosmonauts who stayed on the ground were probably more anxious and excited at that moment than our friend Yuri hurtling through space at colossal speed.

Gagarin's flight revealed many of nature's secrets. The main discovery was that a human being can live and work in space. What Yuri Gagarin had done now had to be developed, multiplied, pushed ahead. In outer space human life was affected by many unknown laws that had to be studied.

Soviet scientists modified the spaceship for a longer flight. Man's second flight was to last a whole twenty-four hours. The spaceship *Vostok-2* was to orbit the Earth seventeen times and cover a distance equal to the distance between the Earth and Moon and back—over 700,000 kilometres. This new operation was entrusted to me, and as soon as Yuri Gagarin returned to Earth, I began training for it. In training with me was my friend Spaceman No. 3—a man of amazing self-control, iron determination and courage. There can be no doubt that during his flight he will multiply several times what Gagarin and I have done in the first two flights into outer space.

The flight of the *Vostok-2*, of which I was the pilot, took place on August 6 and 7, 1961. It lasted more than a day—25 hours 18 minutes. During this time the spaceship orbited our planet more than seventeen

The May Morning Collective Farm, Kosikhinsky District, Altai Territory, where Herman Titov was born and brought up



Stepan and Alexandra Titov, Herman Titov's father and mother, and his sister Zemfira, on the bank of the river where the cosmonaut passed his childhood



times and landed at the exact spot on Soviet territory where it was supposed to land.

When I got back to Earth I reported by telephone to Comrade Khrushchov on the results of the flight. He asked me several questions, jokingly compared my return from space to coming home from a gay party and called the flight a happy occasion for humanity. I told him how long the flight had lasted, how many orbits round the Earth had been made. Then I heard something that moved me to tears. "You are no longer a candidate member of the Party," Comrade Khrushchov told me. "Consider your probationary period as over. Every minute you spent in space counts as a year. You have completed your probationary period for the Party and have shown that you are a real Communist and can hold high the banner of Lenin!"

The conversation was over, but I still held the receiver in my hand, trying to take in what I had just heard. I had always felt myself to be heart and soul with the Party. Since April 1961 I had been a candidate member of the C.P.S.U. My whole life seemed to me to have been spent in preparation for the great day when the Party would call upon me to become one of its sons. But so far I had only prepared myself for the Party, considering myself still unworthy of an ideal I had gradually built up out of what I found best in the older Party people I knew, in anyone who had impressed me with some fine quality.

I had been a member of the Y.C.L. for many years and I had always intended, when I had grown up, increased my knowledge and tested myself in action, to become a Communist. And now, in the very first minutes after my return from space, I had heard from the First Secretary of the Central Committee of the C.P.S.U. that I was a full member of Lenin's glorious Party. My cherished dream had come true.

Not long before the flight I had read the draft of the new Programme of the C.P.S.U., which was soon afterwards adopted by the Twenty-Second Party Congress. I pondered the meaning of this historic document, in which the Party solemnly proclaims the building of communism in the U.S.S.R. to be the great international task of the Soviet people, a task that will further the interests of the whole world socialist system, of the international proletariat, of all mankind. "Communism," said the Draft Programme, "accomplishes the historic mission of delivering all men from social inequality, from every form of oppression and exploitation, from the horrors of war, and proclaims Peace, Labour, Freedom, Equality and the Happiness for all peoples of the earth."

Man is indeed made for happiness as a bird is made for flight, but he has far surpassed birds in flying. He flies supersonic aircraft, spaceships. Man is not only made for happiness, he is making happiness. The Party Programme is the summing up of the reflections of all Communists. It is as if they were thinking aloud and saying this is the road we shall follow, this is how we shall fight to achieve our goal, this is how we shall build communist society.

The projects the Party has defined in this great plan for the next twenty years have been carefully and wisely considered. Like a powerful multi-stage rocket the Third Party Programme will put our people in the orbit of communism just as accurately as the *Vostok* and the *Vostok-2* were put into orbit in space. The cherished aim that our fathers and grandfathers fought for will be achieved in reality. Communism, the morning of mankind, is not far away. We shall build it.

I was greatly moved by the section of the Programme devoted to space exploration. It is we, the sons of the Party, who are to pioneer the starry sky.

Soon after the flight, I received my Party card and was deeply moved. I held in my hand that cherished red card, the document a Soviet person treasures above all else. I read the number—09753678. I repeated it and knew I should remember it all my life. No. 09753678! The ranks of the Communist Party of the Soviet Union number nearly ten million. They are the huge advance guard of communism, welded together by unity of aim and deed, ready to perform any task for the sake of the common victory. Nearly ten million members! When that great strategist of revolution Vladimir Ilyich Lenin laid the foundations of the Party, it numbered only a few score, perhaps a few hundred people. Tsarism took savage measures against it, flung Communists into prison, drove them into exile. But the Party triumphed over all difficulties and roused the people to bring about the Great October Socialist Revolution, to build socialism and communism. Its hundreds became thousands. Now there are millions upon millions. That is what the Party of Lenin means, that is what the number of my Party card told me. The words rose spontaneously to my lips:

“I want to assure the Central Committee, all of you, comrades, that I shall be a true Communist, that I shall exert all my strength to fulfil any assignment. Believe this, you will never feel ashamed of me. It is a great thing that we, Communists, have been destined by history to blaze the trail into space. And the Party Programme says we shall do it.”

This was the goal I had striven for, the realisation of my cherished dream—the Party had admitted me to its steadfast ranks. There is no higher title than that of Communist, there is no more honourable position than to be in its united ranks, to march shoulder to shoulder with the millions of pioneers of communism.

"Take-Off Permitted"

The train wheels clicked steadily as the boundless Kustanai steppes floated past the windows. We stood with the wind in our faces gazing into the distance and speculating idly about what awaited us at the flying training school for which we were bound. Now and then my companion raised a hand to right the havoc the wind was working in his hair.

"The war's been over eight years," he said. "A lot of new towns have sprung up out of the ruins. And Kustanai never even had a taste of war. This school may be quite a decent place."

He paused reflectively, patted his fluttering hair again, and went on: "You know what I'm thinking, Herman? One day we'll be pilots."

Perhaps fighting his own doubts or because of a spark of uncertainty in the look I gave him, he went on eagerly: "Yes, we will. You bet your life. And we'll fly jets too. It'll be fine. What a show our chaps put up at the Tushino air display. Jet flying in formation!"

Both fresh from secondary school, we talked in this hopeful vein all the way to our destination. Then came our first test. We were put in soldiers' uniforms that suddenly made us all look alike, told to fall in, and addressed by our C.O.

"Comrades! For the time being we'll be living on a new site. We shall have to dig dug-outs and make our own quarters there for the time being."

He talked about the hardships of active service that any army pilot must get used to, and how they developed a man's character. Only when he had finished did I realise that for the present all flying was quite out of the question, and that our first job was to dig dug-outs.

My train companion was standing next to me. We exchanged surprised glances and I noticed a despondent frown spread over his face.

There was nothing for it, so we started digging. With an ordinary spade I hacked away at the ancient soil of the steppe, lifted the black sun-baked clods and tossed them out of the marked-off patch where the dug-out was to be. I had got used to work at home, while helping mother and father, but by evening I was pretty tired. My back was aching and my arms and legs felt as if they were full of lead.

The days went by.

"I thought we came here to fly, not dig," my neighbour complained when we had been at it ten days. He got more and more worried. Eventually he went sick and failed to turn out for work. In the evening he was quite cheerful. "I say, Herman. I've got my discharge. On medical grounds."

We held a Y.C.L. meeting and those of us who had been moaning got it in the neck.

Life in the dug-outs wasn't really so bad. It could be quite interesting in the evenings. We would compare our life to that of the young Communists who built Komsomolsk-on-the-Amur or the partisan groups of that legendary hero Sidor Kovpak or the front-line pilots in the Second World War.

We looked forward to starting our training as if it were some great celebration. At last it started. The new subjects, and they were all new to me, captured my interest and I got through the theoretical course without much difficulty.

We scarcely noticed the arrival of winter till it whitened the steppe and piled three-foot drifts at the doors of our dug-outs.

In spite of its increasing complexity the course got more and more interesting as it went on. We started the technical side, aircraft equipment and engines. The YAK-18, which we had to learn inside out, looked complicated at first. But because we were working so hard the time passed quickly and so did the difficulties.

In the spring we took our exams. In my letters to my father I described my comrades and instructors and told him how we were getting on.

My flying instructor Gonyshév was a short, well-knit man, with broad shoulders and broad yellowish, rather Mongolian features. Later on I discovered the reason for his yellow complexion. He was a heavy smoker. He lit a fresh cigarette every five minutes and went about enveloped in a bluish cloud. I couldn't make out why he kept choking his lungs with tobacco smoke, but, since I respected him, I tried smoking myself. The cigarette tasted bitter and unpleasant. I never took a liking to it.

While we were still on the ground, long before the flying started, we started summing each other up. The instructor kept an eye on us and we kept an eye on him. I think both sides were satisfied with what they saw. Gonyshév was a man of tact and insight.

I knew he was an experienced instructor, who had taught scores of young pilots and put them on the right road in life. The course that had just passed out spoke highly of their instructors, particularly of Gonyshév.

“What’s it like in jets?” we kept asking our instructors.

They laughed at our impatience and told us to get to know the YAK-18 first. The jets could wait.

Sometimes you read in a newspaper or magazine about the amazing sensation of learning to fly. You are told how the young pilot taking off for the first time feels almost like a bird, and what a fantastic place the sky appears to him. I think this is painting the lily. Flying is a job of work both for pupil and instructor. Naturally the Earth looks different viewed from above, the horizon is wider and you can see more of the steppe. But that’s not what you think about when you are flying. You are in a cabin with a lot of instruments in front of you. You have to watch them all and, most important, notice and remember every action and gesture your instructor makes. There is no time for being lyrical.

What I remember about my first flight with my instructor was that when we were coming in to land we nearly crashed. We certainly would have done if my instructor had made a mistake or let himself get rattled for a second. We were on our way from the base airfield to an auxiliary strip. The flight was nearly over and I was all eyes to see how Gonyshév would make his approach and come in for landing, how he handled the controls to bring the plane down.

The earth was getting closer and closer. Any moment I was expecting the wheels to touch down on the runway. Suddenly something loomed up in front of us. I didn’t even see what it was. The plane was rushing straight for it. Gonyshév pulled the stick back sharply and we zoomed up over the obstruction, then landed on the runway.

It was a tense few seconds. Gonyshév climbed out of the cabin, stuck the inevitable cigarette in his mouth,

took a long drag at it and said calmly: "Yes, even that can happen."

Then he went off to find out who was to blame, and put things right. As for me, I had seen a new side of my instructor. Even when training in peace-time, a pilot has to have quick responses, the ability to make up his mind in a fraction of a second and act fast without getting flurried. What about in battle? An air force pilot is trained to fight, his responses to danger must be even quicker.

Hard work and determination took us through our spell in the dug-outs that we had built and fitted out ourselves. We moved into barracks, then spent the summer under canvas. We made a point of looking smart on parade, for our officers were particular about our appearance.

I think everyone who learns to fly has at some time to surmount a barrier after which he acquires confidence in himself, his aircraft and his chances of success. It is rather like a runner getting his second wind. He may be about to fall out of the race, but if he masters himself and forces his body to take the extra strain, he gets his second wind and goes on without effort.

The barrier in my case was the third exercise in the flying programme—flight with instructor. With my instructor in the back seat I had made take-offs and landings without any particular adverse comments.

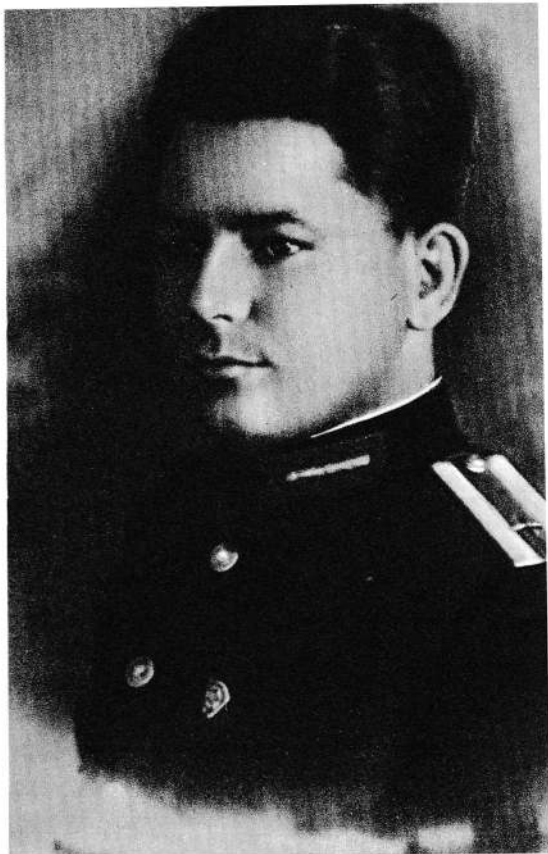
Now I had to take the plane up, make a circuit and land.

I taxied the green YAK-18 out to the take-off flag and received the command: "You may take off!"

I cast a fleeting glance at my instructor sitting in the cockpit behind me, watching me closely. I was nervous but I tried to keep calm by telling myself everything would be all right.

The first stage of the flight went well. But when I

Herman Titov as a
student at flying school



Flying-school days. Sec-
ond row on the extreme
right, Herman Titov



Herman Titov as a
fighter pilot



had to make my landing approach, maintaining the regulation altitudes for losing height and gliding, I made rather a mess of things. It wasn't a good landing. The bump the plane made when it touched the ground told me that.

"Comrade Instructor! Student Pilot Titov has completed his flight. May I receive your comments?"

As usual, Gonyshév was a long time fishing his cigarette case out of his pocket and taking his habitual two or three draws. This time he ignored my question and went over to our flight commander Captain Kashin. They had a rather long and heated discussion. What was it about? I didn't know what to think and wondered anxiously whether this might not mean the end of my flying career.

I needn't have thought that. My instructor and flight commander knew the best way of helping me. One day passed, then another and I was not allowed in the air. Enviously I watched my friends circling the airfield, bringing their planes in confidently and smoothly and landing exactly as instructed. I was not too shy to ask them how they estimated the distance to the ground, how they lost height, and what use they made of the throttle. Theoretically I was word perfect, but the actual flying was a different matter.

It was shrewd of my instructors to give me time after my first failure to calm down and think things over. If I had gone up again straight after an unsuccessful flight, I might have made fresh, even more serious blunders. A few days later Captain Kashin decided I had "cooled my heels" long enough. The next morning, while flight preparations were in progress, he said: "Student Pilot Titov, you will fly with me today. Same exercise: take-off, circuit, landing."

With my engine roaring at full revs I made the take-off run, keeping the plane dead straight. I did every-

thing correctly but with not quite enough confidence. With my eye on the speed indicator I pulled back the stick and saw the Earth dropping away below me.

Captain Kashin was watching every movement. I made a mistake and he took over the controls to put it right. No words were wasted. His voice reached me over the intercom: "Watch your instruments."

One after the other he made the turns and finished up in exactly the right position for landing.

"You must keep an eye on your landmarks," he advised me. "This is where you start losing height. Now you're at 100 metres. Now you're at fifty. Now you're at twenty-five."

After that I made a circuit.

I repeated the landing approach, trying to see the landmarks at exactly the same angle as I had seen them on the previous circuit. Then I began gliding down. This time it felt like a better landing.

"Passable!" Captain Kashin told me when we were on the ground. He called Gonyshév over and had another long discussion with him.

And again that furtive doubt crept into my mind. Why did they take all this trouble? If I was no good, they might as well discharge me and have done with it. It looks as if I've no flying ability, I thought bitterly.

But my instructors thought differently. Apparently they wanted to take trouble with me. Again I started flying in the rear cabin. Instructor Gonyshév put me through my paces again in the air. This time he got what he wanted. I surmounted the barrier of that unfortunate third exercise and started flying as well as the others. Soon I made my first solo flight. It gave me a wonderful feeling of independence. I had never experienced anything like it before.

One sunny winter day we said good-bye to the school. I had passed out with excellent marks and had no sec-

ond thoughts about asking to be sent to a fighter pilots' school, for I was sure it was only in fighter aircraft that the highest flying skill could be developed.

"You are probably right," Gonyshev said.

I had a long talk with him the day before I left. Though sparing with his praise, he told me he thought I might make quite a good fighter pilot.

"You might," he repeated, enveloping himself in a cloud of tobacco smoke. "You've got to realise, Titov, that it's only a possibility, a supposition. To become a real fighter pilot, you will have to put in a terrific lot of work."

Before leaving, we went for a walk round the air station and stood on the spot where we had made our dug-outs. Now there were solid-looking barracks all round, with friendly lights in their windows.

Once again we stood at the window of a train rumbling across the snowy Kustanai steppe. This time we were bound for fighter school.

As a schoolboy I had read about those famous fliers. Alexander Pokryshkin and Ivan Kozhedub, both of them Triple Heroes of the Soviet Union. Their books had made a great impression on me and it may have been then that I acquired my desire to become a fighter pilot, a desire that grew with every flight at the flying school. I like the idea of flying at high speeds and performing acrobatics. You could do all these things in a fighter.

We arrived at the Volgograd Flying School in winter. We began with theory. First we had to fly the YAK-11, a much faster aircraft than the YAK-18 trainer. True, it had only a piston engine and we all dreamed of flying jets. By that time the Soviet Air Force had been almost entirely re-equipped with jet aircraft flying at speeds close to that of sound. Some had even broken the sound barrier.

The characteristic feature in the development of Soviet aviation at that time was the great increase in aircraft speed, thanks to adoption of the jet engine. Aircraft also had new aerodynamic features. They were even more streamlined and the swept-back wings were much thinner and had a sharp leading edge. Fighter planes were equipped with ejector seats and pressure cabins. Their instruments were much more efficient.

At current air displays Soviet pilots were giving wonderful exhibitions of flying skill. Over Tushino airfield two groups of jet aircraft gave the world its first demonstration of jet aerobatics on head-on courses. The performance of jets in the traditional five-plane formation was perfectly synchronised. Even groups of nine planes gave faultless demonstrations of aerobatics.

I mention this because all of us learning to become fighter pilots were so much involved in it that we were constantly thinking of our own function in the Soviet Air Force.

I have loved machines ever since I was a boy. I studied every new aircraft with intense interest. It was the same with the whole course. We tried to learn every aircraft inside out and acquire a thorough knowledge of the theoretical side as well. As for flying, we all longed to get into the air.

During my training on the YAK-11 my instructor was Captain Kiselyov. My flight was commanded by Captain Buivolov, a highly qualified and deep-thinking officer. One day, when we arrived at the airfield, my instructor said: "Comrade Titov, today you're going up with the flight commander."

I got into the plane. In the instructor's cabin sat Captain Buivolov. I had flown with him before and my flying habits had formed under his influence. I took off calmly as usual, went through the exercise and landed.

"May I receive your comments?"

"Good," Captain Buivolov replied. He paused for a moment then added: "I'm going to let you solo."

This was so unexpected that I didn't know what to say. Captain Buivolov repeated with a smile: "Yes, I allow you to solo."

I turned up at the airfield the next day keen as mustard. But my hopes were soon dashed. I was not down to fly that day. Why not? At first I consoled myself with the thought that my instructor wanted to give the rest of the group time to catch up, so that we should all solo at more or less the same time. "I don't mind waiting a day or two," I told myself, "I can do my pals that favour."

But the second day I didn't go up either. When I asked my instructor what was the matter, he replied: "Get your section in order, then you can fly."

The point was that I was a section commander. Our officers wanted to teach us discipline as well as flying. They demanded rigid observance of the regulations. Not all of us realised that at the time. We were so keen on flying that we overlooked other things. I was sometimes lax with the students in my section. I felt that flying was the main thing and neat bed-making and barrack discipline could take second place. But my instructor wanted to train me to be the kind of officer who demands a lot from his men. He made me understand that without discipline on the ground, there could be no proper flying.

Only on the third day, when I reported that my section was in order, and when my instructor had checked up personally, I was allowed to solo.

After I had made a few flights a new instructor took over our group—Lev Maximov. Slim and athletic, he was a cheerful, sociable type, who knew thousands of stories about flying and enjoyed telling them. He was

a fine fighter pilot. His dash and speed were harmoniously combined with restraint and self-control.

Right from the start Maximov tried to develop in his pupils the qualities a fighter pilot needs—determination, initiative, instantaneous responses, presence of mind, and, of course, skill at the controls. He taught us to be constantly alert for an aerial opponent, to manoeuvre fast and energetically.

One day, after we had performed a typical mock attack we were supposed to return to base. While I was pulling out of my attack dive, Maximov suddenly flicked his plane out of sight. I had only relaxed my attention for a fraction of a second, but now I had lost sight of my instructor.

Where was he? Behind? No. Below? No. I made a search. Far away on the horizon I spotted a faint dot. That was him! I opened the throttle and the dot rapidly came nearer. I formed up on the right. After landing I asked the usual question: "May I receive your comments?"

"No comments," Maximov replied.

He didn't like giving lectures. His idea was that we should think for ourselves and draw our own conclusions. He gave us plenty to think about.

I pondered that flight and regretted losing my instructor's plane. Though I can see now that it was an easy matter for an experienced pilot like him to get away from a mere fledgling like me, I promised myself he wouldn't get away from me next time.

Maximov was pleased that I had managed to find him again in the air. He was always on the watch to see how quick our responses were. As he said, no one could be a fighter pilot unless he could react quickly.

Maximov had a fighter pilot's "flair". We often felt it when we were flying with him. We envied him and tried to imitate him. His example was impelling.

In our first pair flights we naturally acted cautiously, trying to keep a safe distance from our leader. As we gained experience, however, Maximov insisted on keeping closer together.

"A pair ought to be like one aircraft," he said. "That's what we're fighter pilots for."

One day we were flying out of the practice zone. I was his wingman. Below us, as far as the eye could see, stretched the virgin lands. Dark, even strips came into view with tractors crawling along the edges, like ants. Down there people of my own age, who had responded to the call of the Party and Government, were turning up the ancient soil. It was a fine and inspiring sight.

Suddenly I saw Maximov's aircraft heel over and come sliding towards me. There was no time to think. I banked away steeply and went into a side-slip. I knew my instructor's tricks by this time. He was testing my responses. After the flight I asked as usual for his comments.

"No comments," he replied with a faint smile.

Maximov liked us to fly with dash and daring. But he wouldn't stand for any violation of safety rules. He demanded the highest skill at the controls and punished severely any pupil who went in for stunting without adequate ability. He was a sensitive man with a vivid imagination, and he took everything very deeply to heart.

I remember another incident. We were going through an exercise in aerial combat. I got excited and came in very close, almost touching Maximov's wing-tip. He zoomed up in a vertical climb. On the ground Maximov said to me: "I've a good mind to . . ." and his eyes flashed with anger.

I had never seen him so angry before. But in a moment or two he was calm again.

"All right, dismiss. We'll look into it," he said amiably.

Maximov's favourite expressions were "height sense", "runway sense", "wing sense", and "bank sense". Day after day he taught us to be daring and to maintain self-control under any circumstance.

Instruction on the YAK-11 was nearly over. Our flight commander Captain Buivolov got us together one day and said: "We are going to write up your records and transfer you to fighter aircraft."

Maximov and Buivolov were always frank with their pupils and demanded the same of them. Honesty and integrity were their highest values. They did not conceal from us what they were going to write in our records.

"I shall give you, Titov, a top assessment," my flight commander told me. "You will make a fighter pilot. But don't let it go to your head. You have still a lot to learn."

I still remember those words. They gave me confidence in my ability and at the same time placed a great responsibility on my shoulders. Later I learned that Maximov and Buivolov had kept their promise. In my flying record they wrote: "This pupil is worth watching. He will in future make an excellent pilot. He flies boldly and with confidence."

A jet fighter! We had dreamed of it. And now it seemed the last stage had been reached. At first glance our new flight commander Valery Gumennikov seemed a different man from instructor Maximov. Cool, unhurried, always erect and smartly dressed, he looked the typical pedantic schoolmaster.

"What will he be like in the air?" we wondered.

He had dark hair and was very well built; his deep bass was calm and authoritative. As one of us said, it was like cartridges clicking into the breech of a gun.



Herman Titov and his wife Tamara

In the library



Shooting



He never allowed himself to look ruffled, even if he was raging inwardly at a pupil's mistakes. He put discipline and order above all else. He was right, of course. There is no room for laxity in the air force.

I remember once, either out of a feeling of protest against our instructor, whom we never saw in anything but an immaculately pressed uniform and boots that you could see your face in, or out of a boyish desire to show him they could be untidy for once, two fellows on the course turned up for instruction in crumpled tunics and not very clean collars. Gumennikov eyed them fixedly and without raising his voice gave them a reprimand on the spot.

"I know you think you'll be able to show your worth in the air," he said. "Have no illusions. If you are alert, tidy, and habitually well disciplined on the ground, you will be the same in the air. If not, you might as well not fly at all. Everywhere and in everything you must have discipline, particularly in a fighter aircraft. Learn to get in step right from the start."

It was short and sharp. He was not one for half measures. It was the same if he got interested in something. He put his whole heart into it. We all realised that he could not tolerate mediocrity. If you did a thing, you must do it well, make a good sound job of it. Sometimes when I was practising aerobatics with him everything seemed to be going well. But not to him.

"Your flying's got to be cleaner, more graceful," he would say, and take over the controls. "Like this!"

I would have to go through the manoeuvre over and over again till I did it just as he wanted.

My other instructor in MIGs was Captain Stanislav Korotkov, a shortish man with ginger hair and a broad, kindly smile. He was considered one of the school's most expert instructors. His attitude to people was one

of sympathy and tact and he never drew hasty conclusions. Intelligent and subtle, he knew how to talk to us students on equal terms, though we had as yet little experience of life. We were fond of him and trusted him like a father.

I owe a lot to Stanislav Korotkov. During our flying training our students sometimes made serious mistakes. Korotkov helped them back on to the right path. I once had a memorable heart-to-heart talk with him that opened my eyes to many things about myself and my character. The essence of it was that a man must be able to master himself, to scour off all the rust and make himself spiritually radiant, as Korotkov put it.

"You must have trust! Trust in yourself and others," he told me. "Not blind trust. It must be intelligent. You'll find it gives you ten times the strength."

The last summer of our training was particularly intensive. We flew in the practice zone, navigated, fought each other in mock combat, carried out target practice and really began to feel what a superb machine a jet fighter was.

At speeds close to that of sound the gravity forces are very great. They wear a pilot out. Students who had paid insufficient attention to sport, now realised how essential it was for pilots. Some were quite unable to stand the strain of a day's flying. But these were few. The majority of us took a lot of exercise in the gym, on the volleyball court and football field. The result was that many received on their final reports the comment: "Endures maximum strain of day's flying without fatigue."

Our stay at the fighter school was drawing to its close. The unusually fine summer was nearly over. Our faces were sunburnt and weather-beaten and we all seemed more mature. We deserved to be. Every day we came nearer our long-sought goal—the final exam-

inations that would qualify us for independent life, the life of an air force pilot, a defender of our country.

We passed our exams. It was the biggest event in my life. Our squadron-leader got us together and announced our results in theoretical subjects and flying.

"Student Titov," I heard my name called out, "has received excellent marks in all theoretical subjects. Circuit flying—excellent, target practice—excellent, aerial combat—excellent."

I confess I felt rather awkward standing at attention with my fellow students, listening to such praise. But at the same time it was pleasant to feel that the years I had given to this intensive training had not been wasted.

By a lucky coincidence, the order commissioning our group as fighter pilots and officers was signed by the Minister of Defence on my birthday, September 11, 1957. We were lieutenants of the Soviet Armed Forces. We examined each other in our smart new flying jackets and caps with wings. We all felt on top of the world. I had completed the course in the highest grade. The instructors to whom we all owed so much, Lev Maximov, Valery Gumennikov and Stanislav Korotkov, congratulated me. Gumennikov gave me a crushing handshake and said: "You won't forget what to begin with, will you?"

"With oneself," I replied.

Korotkov, who was standing with us, added: "And trust other people!"

I knew what he meant.

Ahead lay service in a fighting regiment. How would that go?

Our Regiment

"Say what you like, chaps, we've been damn lucky," Nikolai Yurenkov exclaimed, showing his white teeth in a smile. "We're going to fly our MIGs over Leningrad!"

"So the Admiralty Spire will be landmark No. 1," Misha Sevastyanov remarked. "And we'll be dropping in to see the Bronze Horseman. Well, Herman, what was it your favourite poet said about Petersburg?"

"Forgotten already, Misha?" I twitted him. "Every schoolboy knows it and you're a lieutenant." I quoted Pushkin's famous lines:

*"City of Peter, in beauty stand,
Unshakeable as the Russian land..."*

That evening we were building castles in the air. We had good reason to. H.Q. had decided where we were to be stationed now that we had finished flying school. The course had been shared out among various stations and a fairly large number of us, including myself, had been drafted to a unit near Leningrad.

To any serviceman it matters a lot where he is stationed, and it seemed particularly important to us, young pilots, who had only just been commissioned. Behind us lay four years' training at stations rightly

described as remote. We were not afraid of the discomforts of life in undeveloped places, we were used to them and would have gone to any part of the country we were sent. It was that memorable year 1957, when hundreds of thousands of young people like ourselves, Y.C.L. boys and girls, were setting off for construction jobs in Siberia and the Urals, and for state farms on the virgin lands. The Party had called upon the youth of the country to settle in the taiga and the wild steppes and members of the Y.C.L. had already got their teeth into the job and were bringing life to uninhabited territory.

We, too, were ready to go to any spot where the skies needed guarding, where a fighter pilot could do a good job of work. We were soldiers and we gave a soldier's answer to any order. Yet, without offence to our comrades serving at remote outposts, I still maintain that we were very lucky. To fly the skies of the Baltic, to guard the cradle of the revolution, the city that bears the name of the great Lenin, to visit that city and see the things we knew previously only from hearsay, from books and films, was a great honour. We felt this was our lucky day and could scarcely keep the grins off our faces. Even when we tried to look serious, one of us would catch another's eye and read his own thoughts there, and out would come that broad grin again.

During the leave I was granted after completing my flying course, my father and I often talked about the life that awaited me in my new situation. My father told me what to see in Leningrad as though he had lived there all his life.

"Remember, Herman," he told me, "Leningrad is like a deep well. No, it's not a well, it's a great ocean of knowledge, of education, of wisdom. Do your service well. Put that above everything else. But when you

have leisure, don't waste it. Go into town as often as you can."

October is the same nearly everywhere. Plenty of rain, wind sweeping the leaves down the streets, heavy clouds in the sky. The October I spent at home in Polkovnikovo after flying school was the same. But suddenly something seemed to happen to the sky. The horizon cleared and we felt our hearts give a leap. It was the radio that elated us. On October 4, a powerful multi-stage rocket overcame gravity and put in orbit a capsule of scientific apparatus that became the Earth's first artificial satellite.

"Sputnik!"

There wasn't a house in our village that wasn't full of the news.

Thrilling with pride in our country for making the break-through into space, I arrived after my leave at the unit where I was to begin serving as a fighter pilot.

As far as the weather was concerned, the reception was gloomy. Cold, monotonous, pelting rain. It was raining when we left Leningrad and raining when we arrived at our station.

"Never say die, chaps," said Kolya Yurenkov, reaching out for his accordion, and we sang.

We spent the night in a hostel.

In the morning it was raining again. We went to H.Q. and reported our arrival to the officer in charge.

On the third day after our arrival the C.O. assembled us in his office and told us the history of the regiment with which we were to serve. We knew part of it already. At the club we had taken a good look at the exhibits illustrating the regiment's fighting record. We had spoken to one or two of the station's older pilots. We had asked which was the best squadron and which of the commanders was likely to give the most help to young pilots.

Ours was a Guard's regiment. It had fought valiantly in the Second World War. Several of its pilots had been awarded the title of Hero of the Soviet Union. Over Leningrad they had shot down a good many aircraft with the black spider of the swastika on their wings. The regiment was still guarding Soviet skies.

The commander said the regiment was doing as well in training as it had in battle, and that we should be proud of its traditions and live up to them. "The sky where you will be flying was defended by such gallant airmen as Brinko, Rakov, Golubev, Preobrazhensky, Lobov, Sevastyanov. A novel could be written about any one of them. The very skies of the Baltic demand new achievements of every pilot."

The C.O. and his political assistant had an attentive audience. Their talk made an indelible impression. They were fathers to us. I think we all took a mental oath never to let the regiment down, and to be worthy of the traditions of the Soviet Guards.

I had hardly settled down in the new regiment when on November 3, 1957, on the eve of the October Revolution celebrations, the second Soviet sputnik was launched with the dog Laika in its cabin. Laika was sent into space to reconnoitre the path for man. Test flights with animals had been made in our country as early as 1949. At first the animals were sent up in rockets to a height of 100 kilometres, then higher still. Protected by space suits and pressure cabins, they were recovered from great heights by parachute. Laika's flight in Sputnik-2 was notable because it made it possible to study the prolonged effect of acceleration forces and weightlessness on a living organism.

There was much talk in the regiment about Laika's flight. Only some time later did I realise the full significance of Sputnik-2. We were busy at the time with the practical business of taking over our fighters.

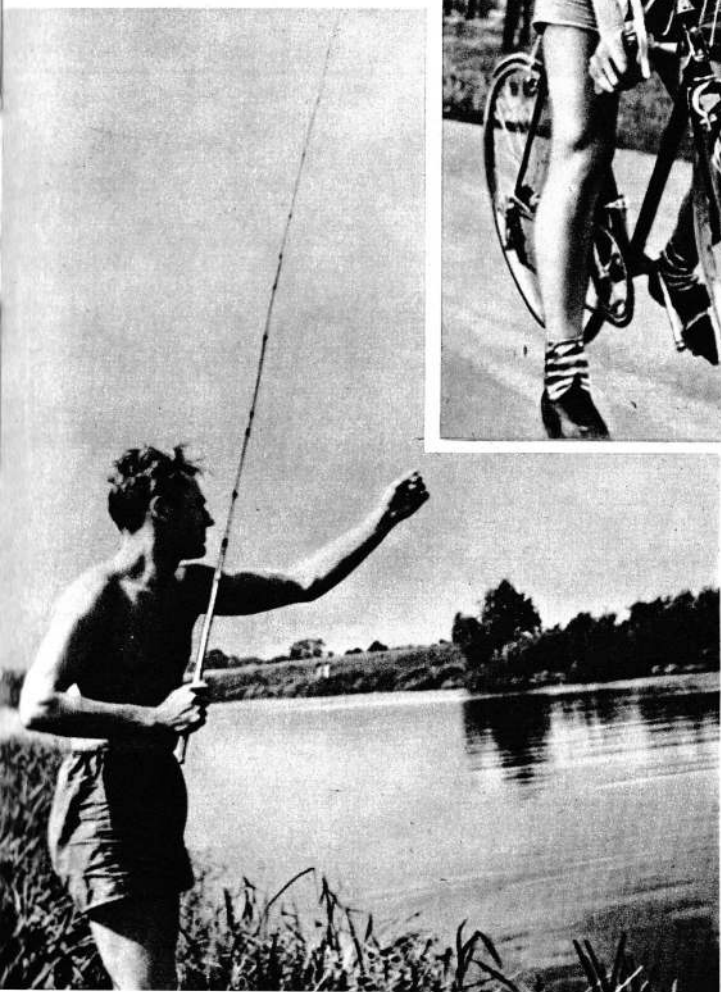
Instruction on this new jet aircraft was over. We had passed our theoretical and technical tests and were due to take the air. We were no longer flying cadets, but air force pilots, officers. We had been given more independence, but correspondingly more was expected of us.

I and some of my friends were assigned to a squadron commanded by Stepan Shulyatnikov, a tall, lean officer with a typically Russian face. He was a wonderfully responsive and broad-minded person. Something about him made me think at once of our school instructor Stanislav Korotkov. Squadron-leader Shulyatnikov was considered not only the best pilot in the regiment but also the most skilled interceptor fighter in the whole military area. Much was said about his skill and knowledge at service and Party meetings and conferences on flying tactics. His name had appeared in the service newspapers.

The flight I was assigned to was commanded by Captain Alexander Kharchenko, a cool-headed and experienced pilot, who had a logical mind and a great love of facts. The three of us, Nikolai Yurenkov, Mikhail Sevastyanov and I, joined his flight together. We were friends. The flight commander realised this from the start and tried to encourage our friendship. He knew it would be good for our flying.

Going up in a more advanced machine is a happy occasion for any pilot. We had worked hard for this moment. Each of us had spent hours in the cabin of his plane getting "acclimatised", going through the motions of flying a circuit. The day before take-off we went out to the airfield once again for cockpit practice. As I approached the silvery aircraft standing with its wings swept back, ready to soar, it seemed to me almost alive, breathing. Tomorrow I was to take it up into the air.

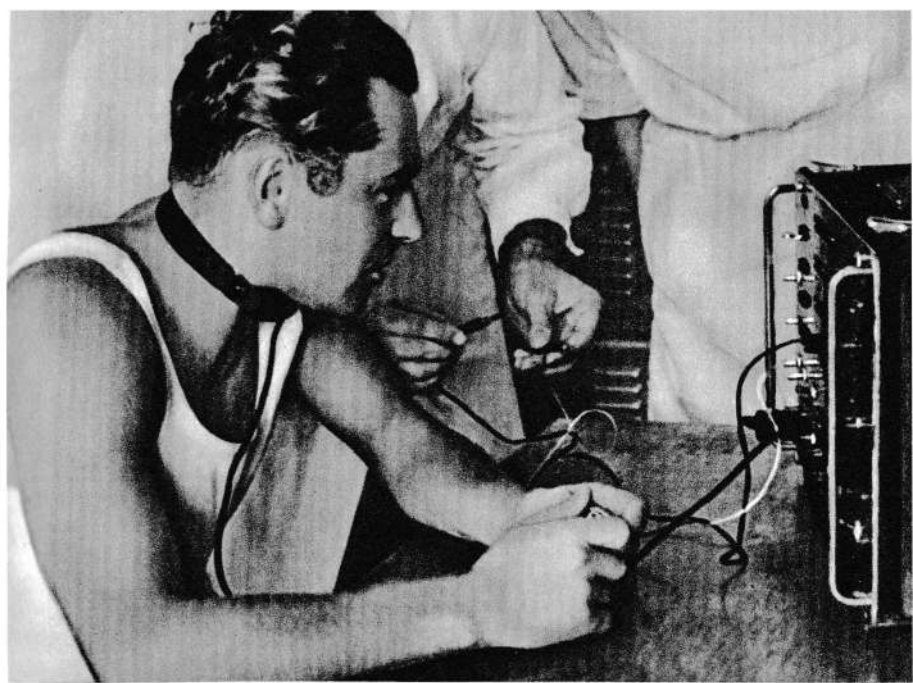
Cycling



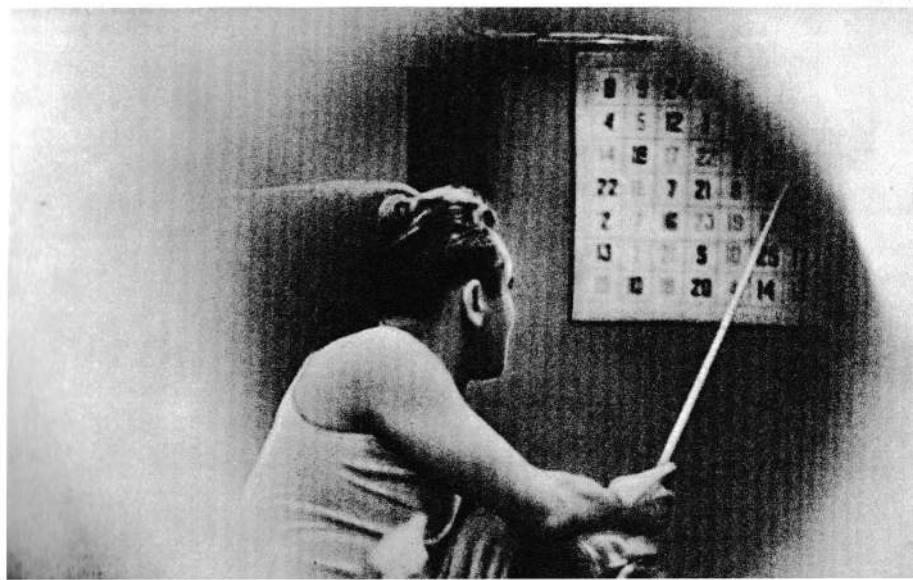
Fishing

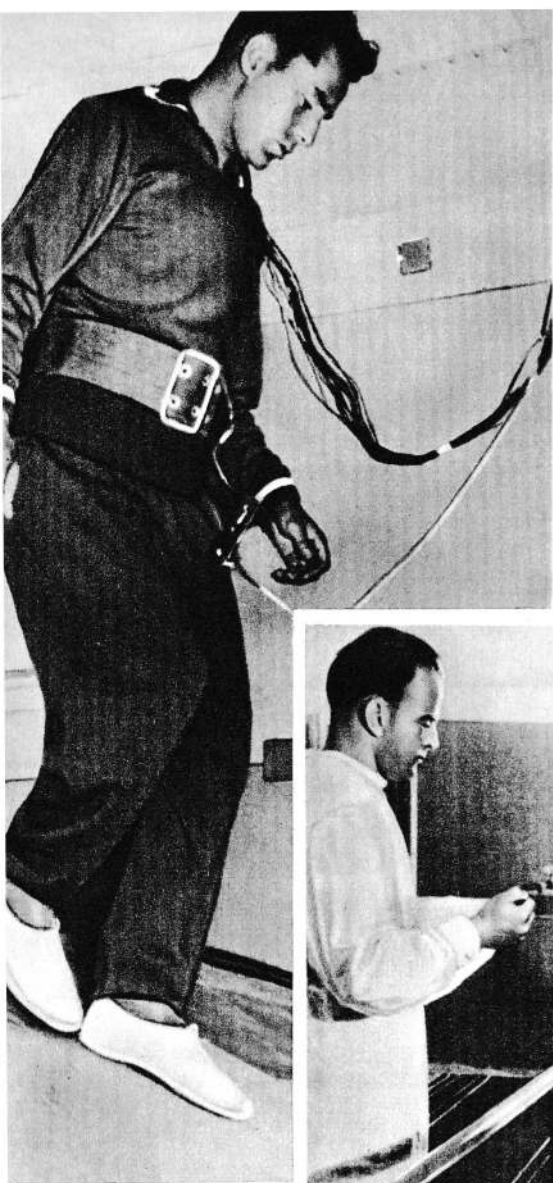


Herman Titov with his former regimental comrades. Left to right: S. I. Shulyatnikov,
N. S. Podosinov, H. S. Titov, N. E. Stepchenkov, N. V. Potashev

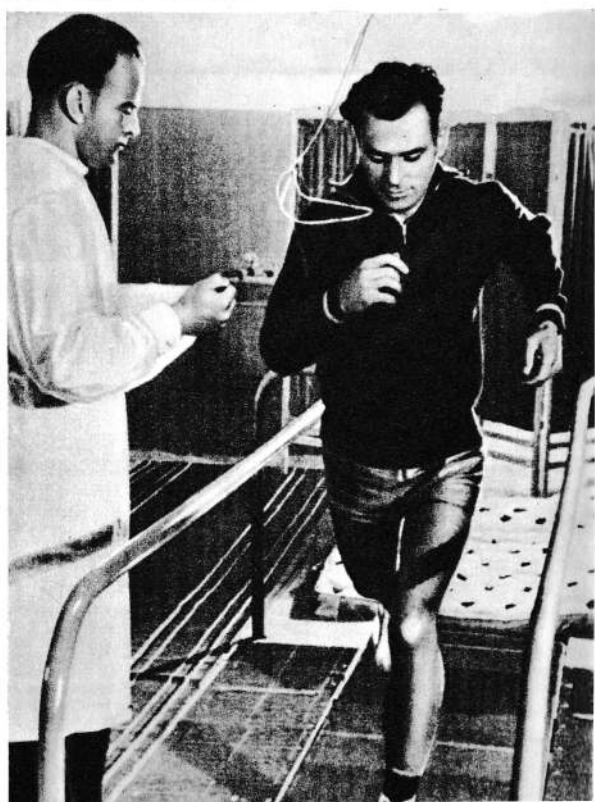


Herman Titov undergoes medical examinations





Special training



My mind slipped back to my first flight in a jet at flying school. Instructor Valery Gumennikov had told me then: "Do everything yourself. I shall just watch you."

The order came over the intercom: "Take off."

I revved the engine and felt the plane shoot forward. In a second or two we were airborne. I tried to observe the flight plan exactly. When I raised the undercarriage I looked at the altimeter—400 m already. At 200 m I was supposed to have made a turn. Too late! My hands moved fast but the plane moved faster. I made my third turn. Then the fourth, and landed. The whole flight seemed to have taken only a minute. It was then I realised just how quick a jet fighter pilot must be.

Now I was sitting in the cabin of a new type of jet. Several times I went through the motions of flying. I took off, made my turns, brought the plane down. But when Captain Kharchenko checked my performance, he was not satisfied.

"Do it again. Don't look at the controls all the time. You ought to be looking around."

I went over it again till I achieved the co-ordination my flight commander demanded.

The next morning I went up to my aircraft. Engineer-Lieutenant Ivan Kuznetsov reported: "Comrade Lieutenant, your aircraft is ready for flight."

I answered in the official manner. Not being used to it, I felt awkward. I would rather just have come up and asked: "Everything O.K., Vanya?"

But I stopped myself. Now I was captain of the aircraft and Kuznetsov was my subordinate. I must get used to my new position. I checked over the plane, keeping strictly to instructions. Meanwhile planes were moving out for the take-off. According to the flight schedule, my friend Nikolai Yurenkov was to go up

first. His plane, its wings wobbling gently, had already taxied out to the start. We kept our eyes riveted on him. The plane started its run in a cloud of snow. In a few seconds it was airborne.

The flight commander praised the take-off.

But the toughest part was still to come—approach and landing. We, novices, were probably more worried about Yurenkov than he was himself. When the plane touched down smoothly at the landing mark we could not help shouting our approval: “Well done, Kolya!”

The flight commander and squadron commander both said it was a good beginning.

As soon as Yurenkov climbed out of the cabin we gathered round congratulating him. He had to face a barrage of questions. Then came my turn. Nikolai stood by the cabin trying to give me some last-minute advice and when I was settled in my seat concluded: “Actually, Herman, just do everything as you were taught.”

I tested the engine and with a nod to my friends taxied out to the start, reflecting that they must now be worrying about me. That seems to be one of the things about our profession. Someone is always seeing us off, waiting for us, greeting us, and they’re always worried. The man in the cabin is the only one who mustn’t get worried—he hasn’t got time anyway. There is too much to do during a flight and a pilot has to concentrate on the important things.

My first solo flight in the new aircraft went off normally. What struck me most? That I was at the controls of an intricate piece of machinery and it was doing just what I wanted it to do. The feeling is familiar to all pilots. That is probably the romance of flying.

For our successful solo flights the squadron commander thanked us in an order of the day. We knew there was still a long hard climb ahead of us to the peak of flying skill, but we were determined to get

there. Incidentally, not all of us, young officers, were quite clear on how to do this.

In our group there were two lieutenants who had done quite well at flying show. But when they were posted to the new unit, they started turning up late for parade, and late on the airfield, and generally hiding over the traces. We were all living together in the officers' hostel. In our spare time some of us would go to the library, others to the club to rehearse an amateur show we were getting up, but these two would slip on their own and return late at night. These nocturnal jaunts were not only a breach of discipline; they had a bad effect on the offenders' health. One of these two was a tremendously strong fellow. His sport was weight-lifting and he could lift 125 kilograms. Even so, the doctor soon had to ground him for medical reasons.

We noticed what was going on and tried to argue with our two backsliders, but their usual answer was: "We've had enough. We kept it up for years at flying school. We're not students any more."

They simply didn't realise how important discipline was on the ground and in the air. We had to take some sort of action, try to influence them before the rot had gone too far. Our officers and the Party and Y.C.L. organisations acted. Soon the C.O. and the Party Secretary called us in for a talk.

"We have decided to ask your advice about the behaviour of your comrades," Podosinov told us.

"You live together, so your suggestions may be useful," Party Secretary Pivovarov added.

We came to the conclusion that the question ought to be discussed at an officers' meeting. The C.O. and Party Secretary agreed with us. The meeting was held next day. We all said plainly what we thought and the atmosphere was stormy. The offenders had to listen

to many just reproaches. It had an effect on them and all the other young officers.

"It's a bit dull here," one of the young pilots who was being criticised began lamely. "It makes you want to get away from it all sometimes."

None of us were prepared to agree with that. Dull here? A young officer with such opportunities grumbling about being bored? As for us, if we could live forty-eight hours in twenty-four, we still wouldn't have time to spare! Flying, training, the club, the library, sport, Leningrad, with its great storehouse of art and history, the Hermitage—all this was his to enjoy and profit by!

And what about the comradeship of the Y.C.L.? We had thought up plenty of interesting things to do. We had organised an amateur dramatics circle. We had visited other units and put on a show that was well received. The performance of the group of acrobats, with me as "spiderman", had got an encore. Our volleyball and football teams had won several competitions. "You've got to live a full life. Don't lag behind, take an active part." So we thought and spoke at that memorable meeting.

Life took its course. Theoretical studies, flight preparations, cabin training, flying, formed the hub around which service in the regiment revolved. The Leningrad weather was not very kind to us. As yet we, young pilots, only went up under normal meteorological conditions. Disappointedly we would stare up at the ash-grey clouds blanketing the sky. But as soon as the met people forecast good weather we started pestering the squadron leader, whose job it was to make up the flight schedule. He got annoyed but it was no good. We wouldn't go away till we saw our names down on the list.

Flying demands tenacity, self-control and resourcefulness. But these qualities don't come of themselves.

They had to be cultivated in us day by day by our commanders. We learned much from Nikolai Podosinov in particular. This stocky deep-voiced fighter pilot was a master of his profession. He often flew with us or directed operations. In any situation he took decisions instantaneously. If Podosinov was in charge, we knew everything would be all right. He directed the movements of aircraft on a crowded circuit like a conductor handling a large orchestra. Thanks to his wide experience Podosinov always knew what was going on on the ground and in the air. He seemed to be able to guess what a pilot would do and know in advance how to help him, how to encourage him or relieve tension with a joke. If we all had such insight, how easy life would be!

The weather in the region of our air station was fickle. A breeze from the sea could bank up the clouds over the airfield in a matter of minutes. Squalls quickly left the sky clear again. In such cases overcautious officers would call off flying. But not Podosinov. He took all factors into account and was not afraid to accept responsibility for the decision to continue flying.

One day when Podosinov was in charge of operations it was particularly squally. I went up and after practice in the zone returned to the airfield. As I made my third turn and started on the approach run, the runway disappeared. What should I do? I couldn't get a glimpse of the runway. I went round again but the squally rain cloud smudged across the sky over the fourth leg was still there. Another circuit. To complicate matters fuel was running low. Just when I was getting really worried, I heard Podosinov's familiar voice: "Bit tricky, is it?"

Yes, it was tricky. But I realised that the squall had covered only the fourth leg and there were no other

planes in the air. I asked for permission to make landing on the take-off runway.

"Permission granted."

I flew to the other side of the field, did a 180-degree turn and landed safely.

"If a man has ability, it's only a matter of time before it's acknowledged," Podosinov commented, apparently replying to his own thoughts, without having anyone particular in view.

Life in an air regiment has many aspects. Before I had got used to my new aircraft, I was put in charge of a political studies group. This was a surprise to me.

"What's worrying you?" political organiser Kovalyov asked, when I expressed my doubts about the appointment.

"I've no experience, shall I be able to cope?"

"You'll manage," Kovalyov assured me. "You've been a Y.C.L. member more than five years and done plenty of jobs for them. The main thing is to study people thoroughly."

Study people? What did that involve? Who can say where such studies begin or end? A jet aircraft can be studied systematically. First wings, then engine, undercarriage, controls, radio, special equipment. But a man? In my political studies group there were about twenty soldiers and N.C.O.s. How could I get to know their characters and make our studies lively and interesting? How could I talk to them so that my words about our Soviet life, our Party, our heroic past and future would reach their hearts, rouse their zeal and daring?

In my mind's eye I pictured the group sitting round me. The average age was only a year or two younger than my own. Really they were my contemporaries. Nearly all of them had a secondary or technical school education, a fact that the textbook I was to use didn't

always take into account. I ground through it again and again. Everything was correct—military duty, discipline, traditions. But my listeners were active-minded people, anxious for knowledge, future college students. They were not likely to be satisfied with what this textbook offered. I went back to Kovalyov to give him quite a different explanation of what was worrying me.

“That’s another matter,” Kovalyov replied when he had heard my arguments. “If you’re as alert as that, you’ll do well. Who’s preventing you from showing initiative? You’re expected to be a real propagandist, a man who can interest others. Have you read Kalinin’s articles and notes?”

I confessed I hadn’t.

“Make a point of reading them. They explain a lot. We have his book *Communist Education* in the library. Read it.”

All Kolya Yurenkov’s attempts to persuade me to go to the cinema that evening failed. I was firmly settled in the lounge of the officer’s hostel. One after the other I read Kalinin’s speeches to army members of the Y.C.L., to propagandists going off to the front during the war. I imagined scenes from the past—the mortal danger that had threatened our country, the fighting, the things that happened to various people. My father, too, had been taken from the work he loved at school and become a soldier. In those days, when the country and all our people were in jeopardy, the voice of the propagandist instilled faith in victory. In those days, in some little shrapnel-torn wood behind the lines this Bolshevik, Mikhail Kalinin, the elder of all Russia, as he was called, had found ways to reach men’s hearts. That was the place to learn!

I was not the only person who felt worried at the prospect of conducting a political study group. Every group leader I talked to had his doubts, his problems.

They all wanted to be well prepared. This was encouraging.

At the first talk I felt nervous but didn't show it. I had to tell my group about our Party, about its directing and organising function in the life of Soviet society. I had drafted a lecture, but I put it aside and started talking about what I knew of Communists, living people who were performing the great tasks of the present day, about people who had given their lives for the revolution or to defend what it had achieved.

I talked about Leningrad. The city was not far away. We had often walked through its streets and squares, awed by the beauty and majesty of its present and of its almost legendary past. I worked into my narrative about the city of Lenin and the comrades of our great leader, stories about the heroic Communists of the last war, men like the fighterpilots of our regiment, stories about the heroes of our own time taming the powerful waters of the Volga, the Dnieper and the Angara, building nuclear power stations and nuclear ice-breakers, settling the boundless steppes of Kazakhstan, launching the first sputniks.

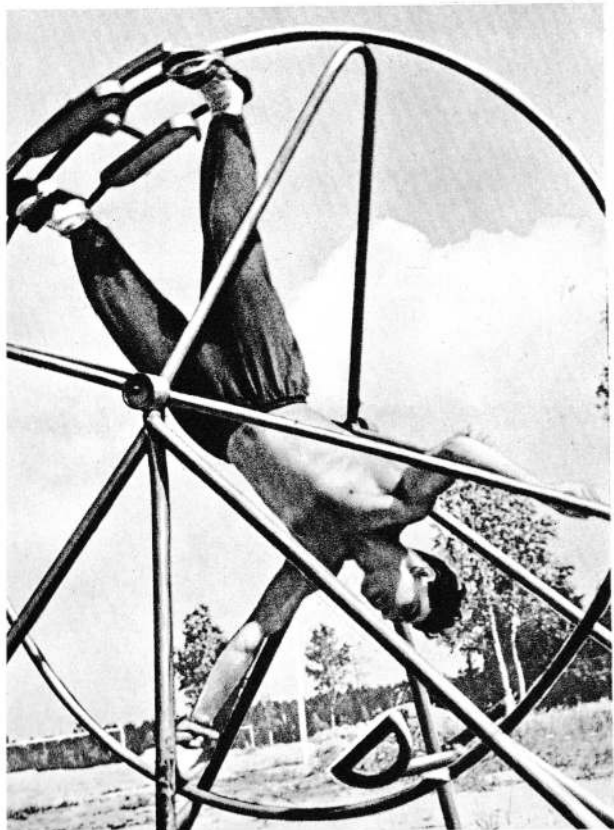
When I finished, Vasily Lizanchuk, Oleg Umanko and other soldiers came up to me and we began a quite informal discussion. They asked me all kinds of questions. I felt there was not enough time to answer them properly. That would be an unforgivable mistake.

"You know what?" I said. "Let's get together in the Lenin Reading-Room and have a talk."

I was much more worried about attending that evening discussion in the Lenin Room than I had been about my first talk. What would they ask about? What was most likely to be of interest to the rank and file? Suppose I hadn't sufficient knowledge to answer them? But the discussion went off quite well. We talked about a lot of things and it was hard to say who answered more



A cosmonaut's diary



Training at the
sports ground

questions, I or the men themselves. We discussed the recent Plenary Session of the Central Committee of the C.P.S.U., the results of the Party's forty-year activity since the revolution, the peace movement. Soldier Lizanchuk, a lover of poetry, asked me about Mayakovsky and what I thought of recent works by other Soviet poets. Not all the members of my group turned up to this discussion, but I was satisfied. A bridge of understanding had been built. In my view the essential thing in propaganda work is to know that our words are awakening in people's hearts good, optimistic feelings that will sooner or later produce fruitful results.

Life taught me that preparing a lecture well was only part of the work of a group leader. Soon I realised one needed organisational and teaching abilities. One day before the period began I made an attendance check-up. A man called Arutyunov was absent. He had failed to turn up twice before already. What was the matter?

Arutyunov was a parachute-packer. He worked irregular hours and there was no way of checking up on his movements. Whenever there was a study group period, he had some "urgent job" to attend to.

"You don't like coming to these talks?" I asked him bluntly.

Arutyunov looked away slyly and murmured something about being too busy. I asked him a few questions about the subjects we had covered. He knew very little. How could he know much after so little attendance?

"Well, Comrade Arutyunov, this is what we'll do," I said finally. "I shall ask your C.O. not to give you work even under exceptional circumstances during political study periods. And for next time you will read this chapter of the textbook and try to make a summary of it."

It seemed quite simple. I reported the matter to his C. O. He gave the order and that was that. The default-

er now sat at his desk, his head in a book, pretending to study the work I had set him. But how was I to make him come to the group with a desire to learn, a desire to get there on time at all costs? It was a question of my ability as a propagandist. If I could stir his interest, I would get somewhere with him.

"Poorly prepared again, Comrade Arutyunov," I said to him after the period.

"I didn't have time, Comrade Lieutenant," he replied without batting an eyelid.

"You had time to go to the cinema and play dominoes. Didn't you?"

Arutyunov was silent.

"You seem to have no desire to study. You've fallen behind the rest. I shall have to form a group for the backward ones and put you in it."

"Me? With the weaklings?" Arutyunov gasped.

I turned and walked away. At the next study period I pretended to have lost interest in Arutyunov and put my questions to the others, pointedly giving all my attention to them. This was too much for Arutyunov. At the end of the period he came up to me and said: "Comrade Lieutenant, why didn't you ask me anything?"

"You don't do your preparation properly. You have neither the time nor the desire."

"That's not true!" he said offendedly.

I stung Arutyunov's vanity with these remarks. But they had a good effect. He turned up more willingly for the study periods, watched his comrades' progress and started to read more and think about what he read.

Another "inactive" member of the group was Soldier Rosenberg, from one of the Baltic Republics. He knew only a little Russian. I would go over to him sometimes while I was talking and find he had a book open or a half-written letter on his desk. It took quite a lot of trouble to give him a taste for study. There were other

cases. Sometimes, just to amuse himself, Soldier Konstantinov, a tough wild-natured sort of fellow, who had already seen the inside of the guardhouse and had got used to being called a "hopeless case", would spring one of his tricks during the study period. I then had to make use of my authority.

I was glad to find that the efforts of my best pupils were not wasted. The group twice got an excellent grading when the inspectors came round. But it was not really so much the grading as the fact that the men became noticeably more mature. Their discipline improved and so did their keenness. That was the main thing.

The regiment lived a full life. After flying and studies we would get together in the club, where we were rehearsing for amateur show; sometimes we went to the gym or watched a film.

One evening at the club I met a girl. Her name was Tamara. She had come to the Leningrad Military Area from the Donetsk coalfields in the Ukraine and she was working at our aerodrome. I found we had many interests in common. Tamara was an interesting person to talk to and took our flying successes and failures very much to heart. Soon we began making trips to Leningrad together, admiring the beauty of the White Nights and going for walks in the park at Petrodvorets, watching those wonderful fountains.

Not very long after our first meeting I found myself writing to my father in the Altai that I intended to put an end to my bachelor way of life. My father was not slow in replying. His letter was as usual short but instructive. "Well, son, if you really love her, as I love your mother, don't miss your chance of happiness. But remember there's more in life than in walking across a field. Once you've joined hands, never let go, whatever the difficulties. You're the older, so you have a special

responsibility, being a man. Look after her and be good to her, but don't spoil her. And be stricter with yourself; when you're a family man, you'll find a lot is expected of you. Give her our kind regards. We should like to see her, but it seems that won't be possible before you come on leave. Kisses. Father and Mother."

It was not a grand wedding. My friends and Tamara's just came and celebrated with us. We were congratulated by the C.O. of the regiment and his aide and, of course, by Stepan Shulyatnikov. Our squadron leader heartily approved my choice and, putting it in professional terms, wished me good "formation" in my family life.

The ranks of the bachelors living in the hostel dwindled. Other comrades got married after me. Only Mikhail Sevastyanov and Nikolai Yurenkov were still waiting for the right girl. But we kept up our friendship. We flew together and performed together at our amateur concerts. Besides reciting poetry, I was keen on acrobatics. The regiment had friendly relations with a bread factory not far away and we used to go there and give concerts, and talks about flying in jets and the future of Soviet aviation. We made many friends at the factory. This was not only pleasant, it enriched our lives, helped us to a deeper understanding of the common work of the builders of communism.

Meanwhile our flying training proceeded. We were now performing difficult exercises involving aerobatics and also flying in pair formation. I had always enjoyed flying in the practice zone. I liked weaving complex patterns in the boundless expanse of the sky. On the advice of my commanders I strove for absolute precision at the controls and ability to perform every manoeuvre with dash and energy. The other pilots in our flight did the same. It was not long before our flight

was assessed as excellent in a regimental order of the day.

The field in which a fighter pilot's skill achieves its peak is aerial combat. Combat holds up a mirror to all his qualities, his piloting ability, will power, daring, resourcefulness and marksmanship. At first we staged practice fights in the air, performing manoeuvres that were planned beforehand. Then we went on to so-called free aerial fighting. Thanks to systematic training I stood up to the gravity forces well and wanted to perform fast, energetic manoeuvres involving the maximum strain. Our commanders tried to check our recklessness. Sometimes I was reprimanded for being too eager. After all, it was only practice fighting and there were bound to be conventions dictated by the rules of air safety.

I particularly enjoyed practising with Nikolai Podosinov.

One scorching summer's day, when the sun was blazing down ruthlessly, making the aircraft's metal skin too hot to touch, Nikolai Podosinov and I took off. When we got into the practice zone, he radioed me: "Break away!"

When we joined battle he allowed me to get on his tail.

"Now, look out!" he shouted challengingly and went into a dizzy series of aerobatics, trying to get away from me and escape attack.

I must say I had a pretty hard time. Podosinov was an experienced pilot and a real master of his trade. But I set my heart on maintaining the attack and keeping in the rear hemisphere behind his plane. The duel lasted several minutes. Then we changed roles. Podosinov attacked me and I tried to get away from him. This kind of all-out practice put us in excellent flying form.

After the flight I went up to Podosinov to ask for his comments. He pushed a damp lock of hair back from his forehead and eyed me closely. "Aren't you hot? You aren't even sweating."

"Seem to be all right," I replied.

"You youngsters are never satisfied!" he grunted.

Aerial combat is an art. Long ago, when I had read Pokryshkin and Kozhedub and books by our other famous pilots, I had realised this was so. Remembering how hard they sought new tactical manoeuvres under front-line conditions, we also strove to develop the art as soon as we had mastered practice fighting. We pounded each other with arguments about how best to evade attack and how best to attack. The answer to these and many other questions lay in logical proof and the acid test of flying.

One day when I was executing an aerial combat exercise I had to evade an attack by my flight commander. I did so by one of the accepted methods. But when the camera-gun films were analysed it turned out that the flight commander had "hit" my aircraft at the very moment of evasion. This incident was discussed by the whole flight. Some said the attack could be foiled by making the manoeuvre not to the right, as was the general practice, but to the left. Others thought this would be unusual and overcomplicated. We argued it out, then with the flight commander's permission we tested the new manoeuvre in practice, got it right and reached a unanimous opinion. We thus invented a new tactical element, which was accepted as part of our armament.

I particularly remember the aerial interception examination flight. I was waiting in the No. 1 alert position when I got the order to take off.

Without a second's delay I left the ground, then called up the controller.

He gave me a course and speed.

I strained every nerve to keep them dead right. Absolute precision, jeweller's precision, was essential. The slightest deviation would ruin all calculations. I made a 180-degree turn, then a further turn, and heard the controller's voice:

"Target ahead, on the left."

I focussed all my attention on that sector, straining my eyes till they hurt. At all costs I must spot the "enemy" plane first. Much depends on the accuracy of the controller's orders, but no less depends on the pilot himself. The sooner he spots the target, the easier it is for him to manoeuvre into attack. I saw something flash in the sunlight. The enemy! As soon as I got a clearer view of him I radioed back to base: "Target spotted. Attacking!"

Only three words. But how much training there was behind them! Ahead, however, lay a no less difficult process—the attack.

I flicked the plane into the initial position and started moving in. The "enemy" aircraft plunged sideways, but too late. He was already in my sight.

In this way, stage by stage we mastered the complexities of the fighter pilot's profession. We soon began flying at night and in all weathers. Flight Commander Vyacheslav Petrovsky went up with me on blind flights. He seemed to have no complaints about my performance.

But it cost me a lot of effort. I tried particularly hard to master the skills of instrument flying, which are needed not only in poor weather but at night too. Systematic training on the ground was of great service. My friend Yurenkov and I never missed a chance of getting in extra practice.

In the political studies group I was taking there was a ranker called Minenko. He was in charge of the

training apparatus. I would come in at all kinds of odd times and tell him to switch on.

Minenko knew my love of training. He would sit down at the switchboard and start "flying". I would get so interested that the time passed without my noticing it.

In the ground-trainer room there was a pilots' training record sheet. When we had finished Minenko would say with a grin: "Let's put it down. I'll fill in the square, shall I?"

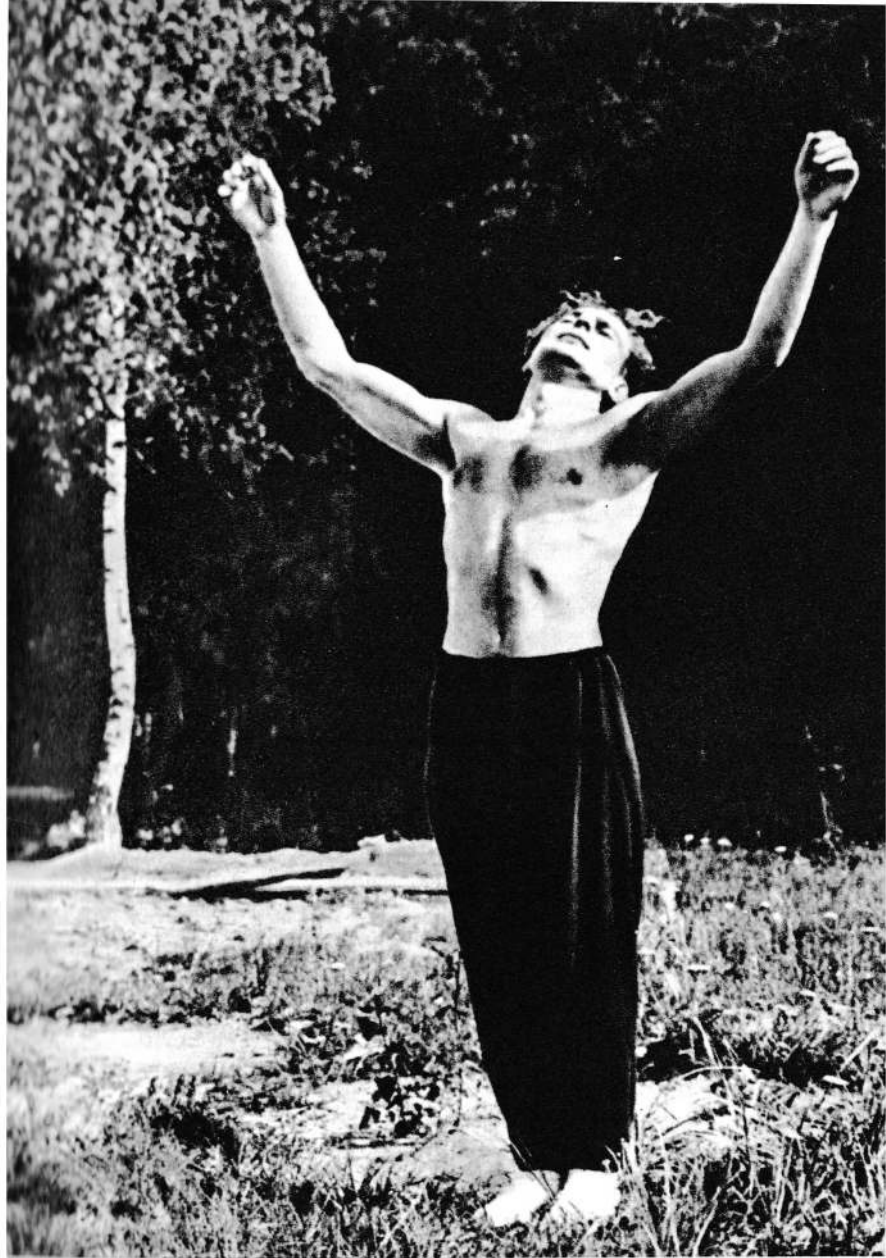
"No, don't bother. That was off the record."

When I had to prepare very hard for my space flight I remembered with gratitude those officers who had encouraged my liking for various forms of training while I was in the regiment.

Instrument flying fascinated me. Sometimes there were tense moments. The officers who trained us made maximum use of these flights to develop our responses, presence of mind and initiative. Sometimes we would be flying in cloud and the flight commander would switch off the gyro, the instrument that indicates the aircraft's position in space. Skill is needed to notice this in time and change over to flying by other instruments. It did not come at once. At first we let the plane jaw before we noticed the gyro was not functioning properly. But as our training proceeded we came to react quickly to any instrument failure.

During my space flight I had to steer the *Vostok-2*. Basically this was also a matter of instrument flying. The skills I had acquired in fighter aircraft proved useful. All-round attention, rapid response, and good co-ordination are equally essential to both the cosmonaut and the aviator.

In the evenings, after a day's flying or theoretical study we, officers, quite often visited the Lenin Room to chat to the soldiers and N.C.O.s, to answer questions



Training at the sports ground



In the cabin of the centrifuge

Training in weightlessness





In the isolation chamber

Yuri Gagarin and Herman Titov discuss the plan for the second manned space flight



These pictures show the equipment and the special seat in the cabin of the spaceship devised by Soviet scientists for normal functioning of the human organism during space flight. Herman Titov used similar equipment during his flight in the spaceship *Vostok-2*



that interested them and try to jog their thoughts in a useful direction. Not long before a party of men who had completed their active service were transferred to the reserve, I had a talk with Corporal Oleg Umanko.

"So you'll be going home soon," I remarked entering the barracks one day. "You've served your time."

"Some of us will be going home. Others don't know where they'll go," Umanko replied uncertainly and looked rather glum.

"How's that?"

"That's how life's worked out for me—I haven't got anywhere to go, Comrade Lieutenant. I haven't any home or family."

Umanko made a despondent gesture and fell silent. We sat down and had a long talk. When I made my remark to Umanko about going on the reserve I had never expected the conversation to take this turn. There might be many roads open to him, but he had to choose the one that would mean no regrets, no remaking his life afterwards. How should he choose?

"Perhaps you'll stay on in the air force?" I suggested tentatively.

"No, Comrade Lieutenant. I've got to think of something else. But I don't know what."

"Anywhere you feel specially attracted to? What about Siberia? The virgin lands? A lot of people are going out there now."

"What's it really like? You're a Siberian, aren't you. I remember you talking about Siberia."

"I'll talk about it again, if you like," I replied readily. "The Kuznetsk coalfields and the virgin land area aren't so far from where I live. Barnaul and Kulunda are quite near. Up north there's Novosibirsk with its factories and institutes."

"Yes, I want to know more about that part of the country," Umanko said. "And I'm not the only one."

There are others like me in our group. We're thinking of striking out in a new direction together, but we haven't yet decided where."

That evening about ten Y.C.L. members, all of them due for the reserve, gathered in the Lenin Room. We put a big map up on the wall and I enjoyed myself talking about my native Siberia, its riches, its past and future.

In those days the virgin lands were not quite so virgin as they had been. The construction sites in Siberia were sprouting big blocks of flats. Factory chimneys were beginning to smoke and the people living in these new towns and villages spoke of themselves as established residents. But the flow of people to Siberia had not stopped. The Party intended to develop the region's enormous natural wealth to the full and put it at the service of the nation.

"You'll have everything—work, educational facilities, a place to live. But not all at once. To start with you'll have to take it as it comes," I said.

"We realise that," Umanko said. "We know it won't be a tea-party with the mother-in-law. But what we want to be sure of is getting the whole group together on one job, Comrade Lieutenant."

That was how it all started. Then the Party and Y.C.L. organisations took up the matter. They got the group well prepared and contacted the local authorities. We held a farewell party for our reservists when they left for a construction job near Novosibirsk. Among them was Oleg Umanko. In due course we began to get letters from them. They told us they were hard at work, that they had decent living conditions and were attending courses; some had already acquired families.

In the spring of 1958 we heard news that made us very glad. On May 15, Sputnik No. 3 was launched into space. This led us into all kinds of speculation. Some

said there would soon be a man on the Moon. Others argued this was impossible till scientists had made absolutely sure that a human being could exist in space. There were many other opinions. But no one then knew of the tremendous work on space exploration that was being directed by the Central Committee of the C.P.S.U. and Nikita Sergeyevich Khrushchov.

It was time for me to go on leave. I decided to fly home in the new TU-104 airliner, which had come into regular service with Aeroflot. There had been a lot about this aircraft in the papers. Vnukovo Airport was crowded. People were waiting for flights to Siberia, to the Ukraine, to the Soviet East and the Caucasus, and abroad. When it was announced over the loudspeaker that passengers for Novosibirsk should get ready, I left the waiting-room and walked up to the barrier.

"In five hours we'll be home," a typical gruff Siberian voice remarked.

I looked round. Behind me stood four elderly men, all of them from my part of the country, plainly dressed men, dignified in their bearing. The nearest of them went on: "Fine times we're living in, eh! Only five hours to Novosibirsk!"

When we arrived in Novosibirsk my fellow Siberians stepped out of the jet airliner as if they were walking down the steps of their own homes. I watched them strolling away and thought to myself what a tremendous leap forward Soviet aviation had made.

I Become a Cosmonaut

Only yesterday, it seems, I had below me the panorama of Leningrad, its avenues, squares, parks, museums. The day when I took off to intercept an aerial target and my regimental friends congratulated me on becoming a fighter pilot, Third Class, seems only a short while ago. Yet these recent events now belong to the past.

Ahead of me lie several days of ordeal by silence in a sealed isolation chamber. I know people sometimes suffer in solitude, but I feel quite calm as I step into my strange new quarters and, just before the door closes, the doctor's voice says: "Don't let it get you down, Herman! Keep cheerful!"

How does a man behave in conditions of absolute silence, when the outside world, full of noises he is accustomed to, is replaced by a world entirely devoid of sound? This is far from being an idle question either for experts in aerial and cosmic medicine or for us, candidates for space travel. How does a man feel, after an hour in complete silence, after a day, two days, three days?

The ordeal by silence, or, as the doctors call it, conditioning to absolute silence, is one of the stages in our preparation. We are steeled for it and have tried

to convince ourselves that it is just an ordinary, everyday task to be carried out to the best of our abilities.

The first padded door closes slowly, then the second—and all is silent. It is like being left on an uninhabited island, utterly alone, except, of course, for the various instruments and the lenses of those most objective judges of all—the television cameras. They are almost my only link with the outside world. It will be the same in space.

I carry out the first lot of instructions. Then I pick up a book and start reading. I try to concentrate, to take an interest in what I am reading. But the silence all round is oppressive, lifeless. It is as if I am not in a training chamber but in the cabin of a spaceship hurtling through the boundless regions of the Milky Way.

How did I come to be here, in this strange world? What made me exchange the cabin of a MIG I had grown so fond of, cramped though it was, for this?

I remember the days I spent in the hospital where out of a large number of young people like myself our group of future cosmonauts were chosen. The chief selectors were doctors, specialists in almost every field of medicine. What kind of a man should a cosmonaut be? This question gave rise to much discussion and argument among doctors. The demands of some were too high. They pictured a cosmonaut as a man altogether out of the ordinary. Others claimed that a man of average physical capacity from any profession could be sent into space. A natural controversy. Spaceman-ship is an entirely new profession and only practice can establish its standards.

The number of candidates for space was large. But we quickly got to know one another. We strolled along the leaf-strewn avenues of the parks in our free time

and discussed recent events. Enjoying the resinous air and blinking in the slanting rays of the autumn sun, we paced unhurriedly from the main block to the farthest corner of the park, summing one another up. We were all bent on becoming cosmonauts. There were more candidates than places, but we were quite friendly, for we realised what we were doing was a matter of importance to the country.

Many of us knew the details of what the Soviet Union had achieved so far in space exploration almost by heart. The chief landmarks were the first, second and third sputniks and the first space rocket. The thing that caught our imagination most was the steady and very considerable increase in the weight of the sputniks. The first had weighed 80 kg, the second more than half a ton, the third more than a ton. The payload of our first space rocket that soared into outer space at the beginning of 1959 was nearly a ton and a half.

Our people could now tackle the greatest task confronting humanity, to discover the eternal secrets of the Universe. The time had come for a man to be sent into space. Naturally, when Podosinov had told me he was ready to recommend me as a candidate for space-manship I jumped at the chance.

"Not a word to anyone just yet," Podosinov warned me. "But you should consult your wife."

"She'll agree!"

"She should. But it's a tricky business. You'll have to explain things properly."

Podosinov gave a meaning look, as if to warn me that the talk with my wife would not be so simple as I imagined. And as usual, Podosinov was right. His experience, his knowledge of life and people had more than once proved of invaluable aid to us, young pilots, when we had difficult decisions to make.

Like all airmen's wives, Tamara was always worried on days when I was flying. It was only natural. In a modern fighter flying at great heights and enormous speeds things sometimes happen unexpectedly. Tamara was particularly worried when we were night flying. I would come home in the early morning sometimes and find her still awake, a book in her lap. There was another rather important factor in our family life. Tamara was expecting a baby. So this advice from an older comrade to have a talk about my future profession with my wife was very much to the point. Tamara listened to all I told her, realised just what this rather radical change in life would mean to us and, having agreed to it, not only did not try to dissuade me, but supported me and gave me encouragement and confidence in success. She was pleased at my daring and made me feel it.

Eager to explore new, untrodden paths I arrived at this quiet little hospital nestling in the midst of a grove of birch trees. Candidates for space! How much was required of us would-be cosmonauts! Scores of examinations, interviews with doctors, and tests, tests, tests.

The pressure chamber. Pilots know it well. I had often made some pretty steep "climbs" in it, reaching great heights in a rather short time. I was also used to using an oxygen mask. Doctors watch closely for any changes in the bodily functions of a man in a pressure chamber. Sometimes the test has to be stopped because the man cannot stand the rarefied atmosphere.

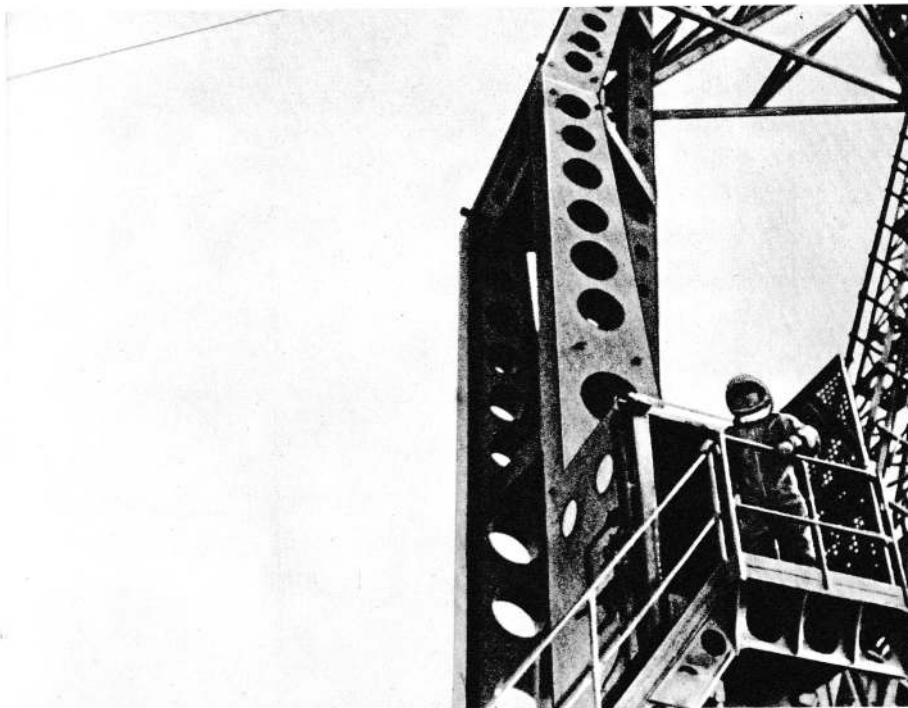
I remember sitting in a pressure chamber, wearing an oxygen mask. Outside the chamber the doctors were watching their instruments. I felt it getting more and more difficult to breathe, and told myself to keep calm.

The faster my heart thumped, the slower the minutes passed. I kept telling myself this was natural to reassure myself. I knew that complex apparatus was constantly keeping the doctors informed about the functioning of my heart, my brain, my breathing and blood pressure. Recorder-pens were making graphs, telltale electric pulses were quivering on screens.

The door opened and I was asked to come out. I unhurriedly removed the oxygen mask, then stepped out into the room and underwent a close examination. From the doctors' satisfied faces I knew I had passed the test.

The names we thought of for the centrifuge! Our favourite name for this machine for conditioning the organism to withstand heavy strains was the "devil's windmill". And we used it with feeling. The room next door to the centrifuge was hung with photographs of electrocardiograms with such unpleasant titles as "convulsions" and "black-out". They were records of what quite often happened to people, when they were swung round in a centrifuge in a sitting position. But when I was tested, everything went well. Even the "head-pelvis" strains didn't strike me as being exceptionally tough. In practice, the "devil's windmill" turned out not quite so bad as it was painted.

Most people have at some time or other ridden in an old and delapidated bus. Standing or sitting, your whole body gets shaken up. Changing seats makes no difference because the whole bus is vibrating and shying at every bump in the road. The sensation is similar during a vibrator test. In rocket, vibration from the engines is inevitable. Our doctors wanted to know our reactions beforehand, so we had to get used to the vibrator. During one test I even took a book with me and tried to read. At first it was no good at all. The letters blurred and the lines lost their shape at once.



Before the launching



Television picture of Herman
Titov during his flight in orbit
round the Earth



БОРТОВОЙ ЖУРНАЛ

КОСМИЧЕСКОГО КОРАБЛЯ

«ВОСТОК»

1961

Дат.	Вре.
10	10
11	11

первый полет в
космос, совершаемый
человеком. Восток
№1

Самостоятельно
Иванов Космонавт

№1 Москва, Кремль
Полет в космос
Андрей-1 Умри Минт Космос
и другие Космос Океан Космос Туризм

проводит занятия по системе
тренировки космонавтов
советскому народу



Entries made by Herman
Titov in space

But when I took a firm grip on the book and got the knack of it, I was able to read passably well and even began to take an interest in the text.

The days went by and I was still in hospital. Any healthy individual must eventually tire of endless medical treatment.

"I'll be glad when I get out of here," I said to the psychologist one day when he asked me how I felt.

"You find it a strain, do you?" he queried, giving me a keen look.

"It's not so much a strain," I replied, "it's simply boring, when one feels perfectly fit, to lie in a hospital ward doing nothing. Why don't you tell us straightaway whether we're suitable or not?"

The psychologist smiled understandingly.

Moving the gleaming metal instruments about on his desk, he began to talk. He dilated on the reasons for this strict selection of men intended for space flight.

"We are exploring unknown territory and any mistake will be irreparable," he said. "We must find out exactly how people stand up to various strains. There are so many unknown factors. The only thing that is perfectly clear is that the man we send into space must be absolutely healthy. So you'll have to put up with the treatment."

That was that. For the umpteenth time I took the thermometer from the nurse's small hand, stuck it under my arm and went on reading a novel. Ten minutes later the nurse looked at the thermometer and shook her head worriedly.

"What's the matter?"

"Thirty-seven point six. You'll have to go to bed with a temperature like that," she replied.

"Yes, into bed with him. No more tests!" the doctor said in a tone that allowed no argument.

I had to resign myself to fighting a cold. This was worrying. Suppose they eliminated me, as many candidates had been eliminated already? On top of everything, the cold put up my blood count. I submitted patiently to treatment and swallowing medicine.

A few days passed. I got my papers back and was told to return to my unit and continue my duties. But what about space?

"The decision will be made later," was the comfortless reply. "Go back to your unit and start flying again."

Back in my regiment I had to answer a lot of questions from penetrating and curious friends. What could I tell them? "No go!" was the only answer. Again I was flying MIGs, practising, analysing flights. Meanwhile I was becoming more and more worried about the health of my wife, who was going to have a baby and was liable to sudden changes of mood.

Soon I was summoned once more to Moscow. This time I heard the long-awaited answer—accepted. One of the members of the commission told me that my candidature had been particularly supported by Doctor Yevgeny Alexeyevich with whom I had often had heart-to-heart talks.

I returned to the air station.

"Now we're ready for our house-warming!" my wife greeted me joyfully. She had made everything comfortable in our new quarters and the room seemed radiant with her presence.

But the life we had only just started had to be overturned.

"There won't be any house-warming. We're leaving," I said, looking round the room. It was so cosy. I could feel her loving care in everything.

"So the answer was yes? You've been accepted?"

"Yes."

I said good-bye to the regiment, to my commanders and friends. I was glad and sorry. Glad at the prospect of mastering a new and fascinating profession. Sad because I must leave my present interesting work and my friends in the regiment and the Y.C.L. organisation. Thank you, senior comrades, commanders. Thank you Nikolai Podosinov, an officer with unfailing belief in those under his command; Stepan Shulyatnikov, strict and intolerant of any mistake but equally considerate to every pilot; thank you, Nikolai Potashev, Nikolai Stepchenkov and Alexei Nikulin, virtuosi of aerobatics. You had a great store of knowledge and I drew freely on it, on your experience and skill. Only now do I realise how much work it cost you to make a pilot of me. Good-bye my regiment and flying-school friends Kolya Yurenkov and Lev Grigoryev. High skies and happy landings!

But enough of memories. That's not what I'm in this isolation chamber for. It's time I did some work. I have a long list of tasks to perform. This complete isolation is not only for my own sake, to condition me, a future cosmonaut, to absolute silence; it is also a medical experiment.

It is quiet, very quiet. But the word does not really describe the situation. Complete absence of sound. Not a tap, not a rustle, not a splash, not a sigh. Such absolute silence takes some getting used to; one must acclimatise oneself to it, preserve what the doctors call one's neuropsychic equilibrium.

A glance at my temporary residence and its scanty furniture. A small arm-chair at a table. A special switchboard and, beside it, a television camera. Everything needed for a long-distance flight lies ready to hand—food, water, living utensils, books to read, a notebook. It will be like this, or something like this, in

space. Solitude, silence, and movement at tremendous speed through the boundless regions of the Universe.

I make entries in the log-book and perform a number of other tasks. It is just like a real flight. I know I must keep my watch with faultless accuracy, and not so much because I am being observed by a television camera as to get used to maintaining a steady rhythm of life in such conditions.

It is time to eat. I take the prepared tubes, unhurriedly squeeze their contents into my mouth and swallow. Quite a pleasant taste and, so the doctors claim, extremely nourishing. A steak sizzling in a hot frying pan would be more to my taste, of course, but we won't argue with the doctors. They know best.

Supper is over. I make a few entries in the log, do some physical jerks in the few square metres of the chamber and turn in. Good-night friends and family! I begin a night of silence and solitude. It's my job and I do it like a soldier.

In the morning there is neither sunlight nor an alarm clock to waken me. My body is rested and the order I gave myself interrupted my sleep at exactly the right time. A new working day begins. I set about my routine jobs, trying to make no error, to perform every task precisely and overlook no detail. When everything is done I may read. I take a volume of Pushkin and repeat some lines from *Eugene Onegin*, a work I have made up my mind to learn by heart.

I remember the beginning of the first chapter and scenes from Leningrad come involuntarily to mind, yes, it has its charm in all seasons. But perhaps I am indulging too much in these all-absorbing memories of the past. No, not really. What I am actually doing is critically reassessing my values, analysing myself, my character, my actions, my attitude to the life around me, to my duty. The Communist writer Nikolai Ostrov-

sky has a wonderful definition of a Soviet man's credo in life. It runs like this. A man should be able to say, when he has lived his life and is dying, that all his energies have been given to the most beautiful thing on earth—the struggle for the liberation of humanity.

This is the supreme goal! As seen by a man whose unyielding courage I have esteemed ever since I first read his immortal *How the Steel Was Tempered*. Nikolai Ostrovsky's life, his struggle, his ardent writing are a wonderful example to our young people. But why "when he has lived his life and is dying"? It is not such a bad idea to look back while one is fully alive, to assess one's actions, one's course in life. To think where one is going, whether one is keeping up with the rapid progress of our reality, seeing its bright horizons or lagging behind at the roadside, to make sure one has not turned off on to some weed-choked by-way.

In my opinion, every man, particularly when he is young, would find it worthwhile to ask himself that question and answer it. He needn't stop, needn't slow down the tempo of his life, but he should take a sternly critical look at himself, make what we call in the air force a "flight analysis". In the isolation chamber I have had the chance to do this. Perhaps that is why I have been so carried away by memories. There are many of them. I am choosing what is most important, thinking them over and drawing conclusions.

I hope my regimental friends won't judge me too harshly for writing to them so rarely from my new station. A cosmonaut's training is mainly a matter of hard work. Work that has been planned and adjusted to a time-table of medical surveillance. We have given ourselves wholly to this task.

By "we" I mean our group of cosmonauts. We come from many parts of the country, our biographies are

extremely varied, but in many ways we are akin. Great unknown distances lie ahead of each of us.

We quickly got used to one another and made friends. One condition we agreed upon at once was not to pardon each other's mistakes. If we disliked something we must not pass it over in silence. We must speak out, criticise and accept criticism in businesslike fashion. Anyone who knew more, or had grasped something quicker than the others, must share it. There must be no slackness in helping one's friends. The law of our communist morality is sacred: all for one, and one for all!

In this way our group gradually built up its traditions, its unwritten laws. We acquired that harmony of understanding that is created by a community of outlook and aim. We all supplemented one another in some way.

Our training began. We had to begin from scratch, alternating between theoretical subjects and practical exercises. Every day there was physical training and sport in the open air.

Many people have only one love in sport. A man may like gymnastics, for instance, and won't have anything to do with any other form of sport. Of course, there is nothing very wrong about this. Gymnastics develops the muscles and strengthens the lungs and heart. Why go in for any other form of sport then? This was approximately how I looked at things. But one day it was the subject of a long discussion between myself and my P. T. instructor.

Our morning usually began with a lengthy session of setting-up exercises. The first exercise was a run—a long one. I had never been keen on running since I was a boy, although back home I had done plenty of running about with children of my age. But while I was still at school, I fell off my bicycle and broke my left

arm. The doctors told me that only gymnastics would fully restore its strength. So necessity made me take up gymnastics. Eventually I fell in love with the sport and I shall always love it. I became particularly keen on acrobatics and of course, there was cycling. And now they wanted to make me run. What for? Running could not be included in the P.T. programme for the cabin of a spaceship. Whereas gymnastics offers excellent general development and training. In short, I never felt like those morning runs and our instructor noticed it.

"You have a queer approach to sport, Comrade Titov," he told me. "You practise on the apparatus with a will, but running leaves you cold. What's the matter?"

"Every man has his likes."

"So you don't like running?"

"Quite honestly, I don't."

"You'll have to like it."

"Love can't be forced, you know."

"That's true enough," the instructor replied. "But let's consider for a moment what each particular form of sport gives you. What does running give a cosmonaut?"

"More or less the same as gymnastics, cycling, acrobatics," I replied, as if answering an examination paper.

"You forget one very important element—rhythm. Only running develops a sense of rhythm in the functioning of the heart, the lungs, the whole organism."

It was a long discussion and the result of it was that I did more running of my own free will, increasing the length of my outing each day. The essence of sport is to practise because you want to, because you feel an inner need to do so.

In the end my P.T. instructor and I found a common language. He was another of the good men I met, and

he gave me a love of all forms of sport. Now I find it hard to say which I like best.

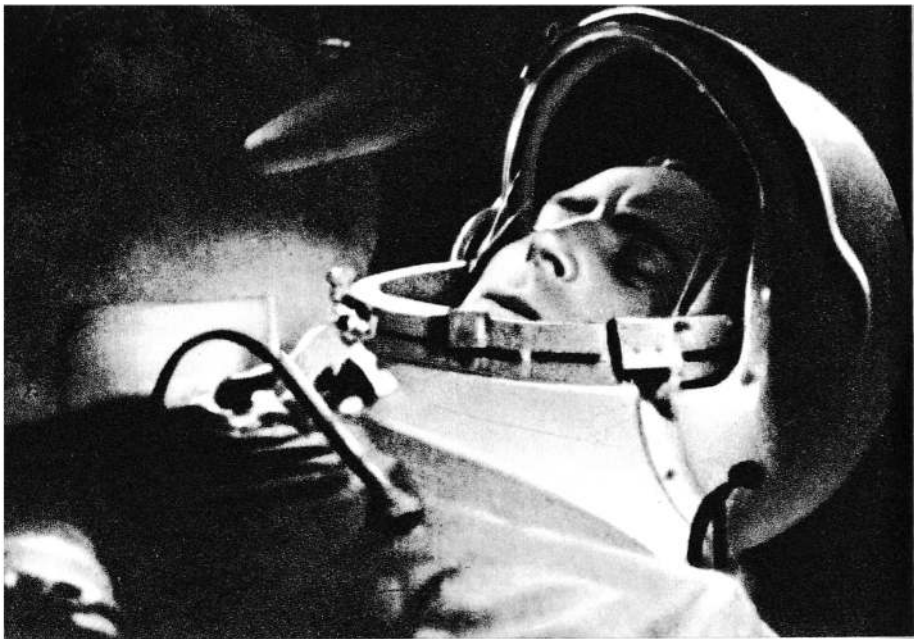
The young pine-trees round our sports ground rustled pleasantly as the wind bowed their dark crowns, held them down for a second, then let go again. And as soon as those graceful pines lifted their heads the wind was at them again, trying to bend them to the ground. In such weather it was good to play and practise. We had taken a liking to our sports ground and all its equipment. The football field, the tennis, volleyball and basketball pitches, the parallel bars, bars, roundabouts, wheel, javelin- and discus-throwing pitches, skittles alley, dumb-bells, weights—everything was for our use. The only disadvantage was that we had to practise according to a strict plan, under medical surveillance and the guidance of an instructor. At first we didn't like it. We wanted to enjoy as much as we liked of the horizontal bars, for instance, or to go on shooting a football at that goal, which was always devotedly kept by Yuri Gagarin. But our games were often interrupted at this most exciting moment by a blast from the instructor's whistle. Even in sport we had to learn to obey, to practise according to a strict system. Otherwise there would be no progress.

"A cosmonaut needs every kind of physical training," our instructor often told us.

The sports ground was well equipped to give reality to this phrase. We were always receiving new sports gear. One day we rigged up a trampoline net, the kind circus acrobats use for their amazing somersaults and spins. I had often seen such twisting and turning in the circus and it looked easy. The taut net tossed you up and all you had to do was get your somersault done before you came down again. But practice proved me wrong. Trampoline jumping demands agility and body control. My first attempt was a failure.



Moscow, August 6, 1961. The first press reports

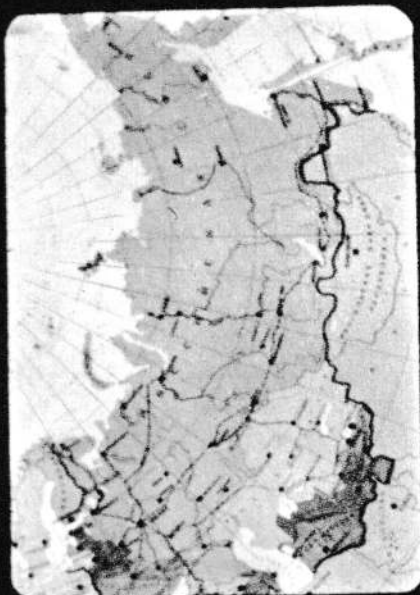
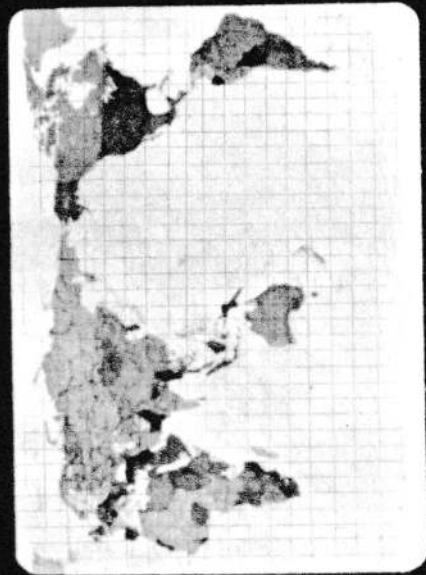


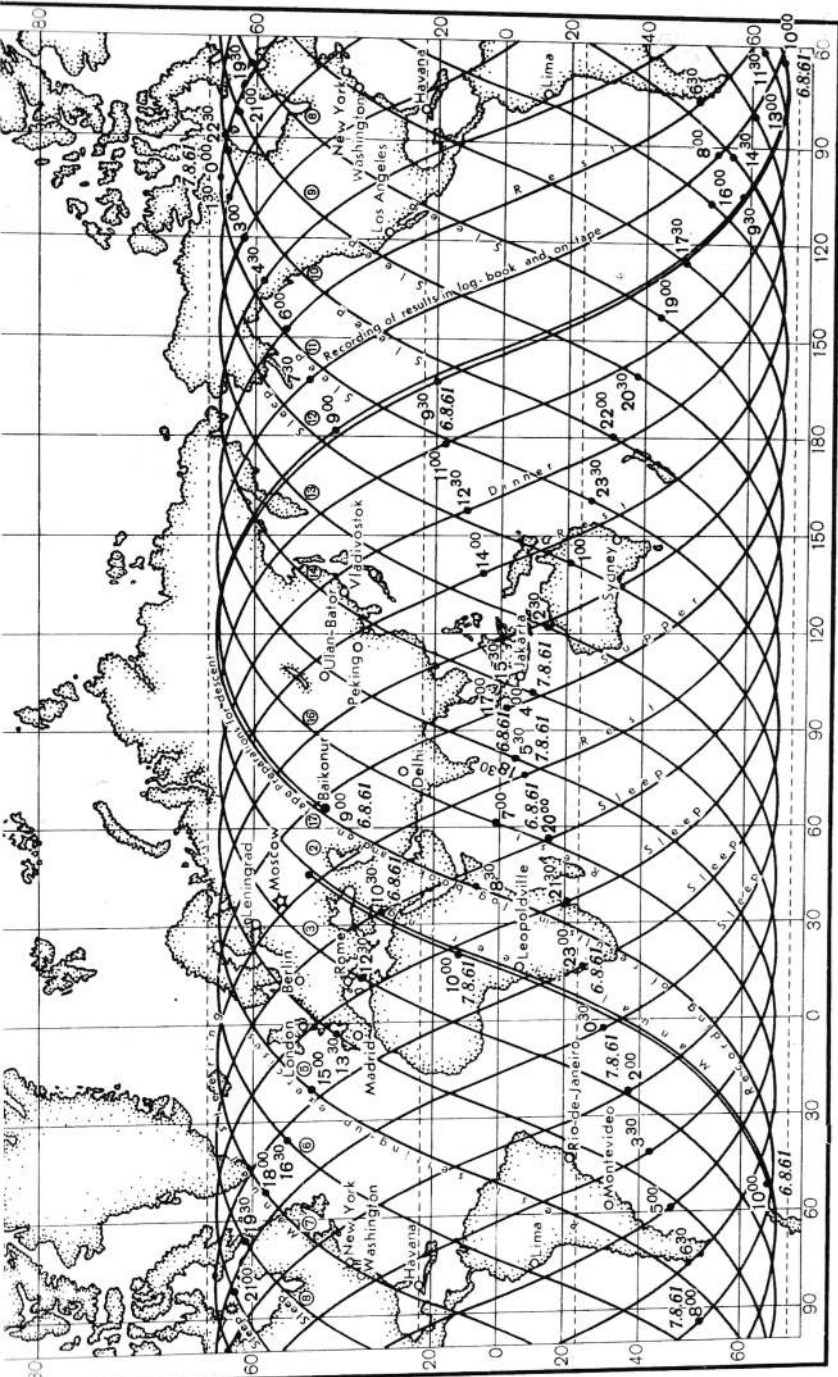
During his seventh orbit Herman Titov reported by radio to Earth:
"I am going to sleep. I don't know about you, but I am going to
sleep."

Tracking the Vostok-2



At the co-ordination-computing centre during the flight of the Vostok-2





The course of the Vostok-2

"Let's start all over again," the instructor suggested and showed us an ordinary somersault. Then he went on to explain in detail about arm action and what he called "tacking", how to shift your centre of gravity by various movements.

My friends, and I, too, got very keen on this form of exercise. The trampoline taught us how to co-ordinate our movements, an extremely important factor in parachute-jumping. It trained the vestibular apparatus and taught us how to judge the position of our bodies in space quickly.

Then we went to the swimming-pool and dived from the spring-board. The high board scared us at first, but the trampoline had got us used to heights. I made my first high dive and one more sensation of falling had been mastered—this time into the water.

I still didn't abandon my beloved bicycle. I get great pleasure out of working up to a good speed on a light, manoeuvrable machine. I like to crouch over the handle-bars till my body is part of the bike and I can feel it cutting through the resilient air. Racing over the smooth asphalt with the birch-trees and poplars flashing by and woods, fields and ravines dropping behind in the distance, I want to pedal harder and harder. As the air grows more and more solid I feel as if I only need a pair of wings on my bike to send me soaring into the sky.

Winter brought us a new joy—ice hockey. We played recklessly with boyish zest. In the heat of the game someone would usually get a black eye. Our bruises were good evidence of our love of hockey.

Thorough and exacting medical examination showed that we had become healthier and stronger, though we had never had much to complain of before. The doctors noted that we were all standing up better to the increasing strains, that our hearts were in better

condition and, therefore, capable of greater endurance. This was a great advance.

But we did not spend all our time studying, playing basketball, and whirling round in the centrifuge. We found time for the cinema and the theatre. We enjoyed plays about contemporary life, like *Cooky* and *Irkutsk Story*. Films directed by Alexander Dovzhenko, Grigory Alexandrov and Grigory Chukhrai delighted us and we appreciated the acting of Sergei Bondarchuk. At the ballet we saw a new and quite genuine miracle—Elena Ryabinkina.

We, cosmonauts, grew very keen on literature. For the most part we read the Soviet classics. Books by Maxim Gorky, Dmitry Furmanov, Leonid Leonov, Konstantin Fedin, Alexei Tolstoi. Some of us read them for the first time, others re-read them. Every page of these outspoken books enriched us, taught us how to live, instilled in us a love for people, for nature, for the enchanting music of the great Russian language.

In our short lives we had known no fierce storms or earthshaking events and we stood fascinated on the brink of the ocean of human passion that rages in these well-loved books. I am keen on historical novels and I cannot help saying a few words about the writer I like best of all. Ever since I was young I have been fascinated by the work of Mikhail Sholokhov, a poet and thinker who reveals the great and exciting mysteries of life, who has portrayed a whole epoch in the evolution of the Soviet people. Not a single modern painter possesses so rich a palette as the writer Mikhail Sholokhov. No composer has such intricate and varied range of sound. His heroes are passionate and resolute in their actions. Sholokhov's strong yet gentle hand touches every chord of the human heart.

I don't know about other people, but when I come to the part in *And Quiet Flows the Don* where Aksinya

says "Grisha darling, the grey hairs you've got! So you're getting old? It's not so long ago that you were a boy," I am moved to tears.

And can anyone forget such a beautifully described scene as this: "Dawn was ablaze. In its reflected light the water seemed rose-pink and the great majestic birds resting on its calm surface, their proud heads lifted to the sunrise, seemed as pink as the water. Hearing a rustle on the bank they soared up with strident cries, and when they rose above the forest, Grigory's eyes were dazzled by the snowy radiance of their plumage."

Soviet life is full of endeavour and achievement. In our reading we sensed the irresistible onrush of life, its hammering pulse, its intensity. We went to bed at night, bitterly regretting the loss of the hours that we should like to have spent living.

It is hard to say what is more important in preparation for space flight, physical conditioning or wide erudition in the subjects a cosmonaut needs to know. At any rate we considered that study of theory was as necessary to us as the air we breathed. Above all we needed to know the subjects that were directly connected with the construction and flight of the spaceship, such as aerodynamics, rocket dynamics and astronomy. I drank in the lectures on these subjects, made notes and, like all the other comrades, asked our instructors to recommend additional reading on them. But at first I was not very interested in the medical lectures, by doctors, psychologists and other specialists in space medicine. In this I was profoundly wrong. I had forgotten the advice my father had given me in one of his letters: "If you want to achieve your aim, you must also do things you don't like. Don't hope for easy success."

The efforts of my friends, the influence of the instructors and my father's advice, which I eventually

remembered, changed my point of view and led me to the conclusion that in training for spacemanship there are no items of major or minor importance. They are all equally essential, including a sound knowledge of the fundamentals of space medicine.

I must also say that I and some of my comrades were far from enthusiastic about beginning parachute training. We had some experience of parachuting, because all of us had bailed out a few times either at flying school or in the regiment. There seemed little need for a cosmonaut to have more. Our instructor, Nikolai Konstantinovich, a sportsman of great experience and distinction, who had trained a dazzling bunch of record-breaking parachutists, noticed our lack of zeal and told us: "Never mind, you'll soon taste the delights of free flight in the air. Before long you'll be asking me for extra jumps."

He told us a lot about parachute jumps and how to make them, about the skill some people had acquired in controlling their fall. He told us that a parachute-jumper's arms and legs could be aerodynamic rudders if only we knew how to use them, and that there was no such thing nowadays as haphazard falling for the skilled parachutist. Much of what he said was new and fascinating. He had dedicated his whole life to parachute-jumping, he was in love with the sport, and he succeeded in firing our imagination and making us realise that the art of jumping required much effort to achieve.

On my first jump I experienced a moment of crisis. As soon as I left the plane I nearly got into a spin. My body started revolving haphazardly. It was an unpleasant sensation. I remembered my instructor's advice. In such cases one must first "tack up" and make one's body "compact". I drew in my legs, arms and head, then thrust them out again. The slip stream tore

at me trying to pin my arms to my sides and bend my legs, so that it could again take control of my body and go on spinning it till I hit the ground. It took strength to fight this rush of air and I have strength. As I stood the strain my body began to drop steadily so that I could pull the rip-cord. The silk cupola blossomed like a flower above me.

That evening I saw the news-sheet the group put out. Our satirists hadn't been able to resist a picture of me spinning through the air, all arms and legs. The caption was: "Makes you dizzy!"

Soon we had to make jumps into lakes and rivers. Nikolai Konstantinovich kept a sharp eye on us, noting our successes and blunders and generously offering advice. -

The days and weeks flew by in constant activity. We learned a lot, passed all kinds of examinations and underwent various tests.

Life is such that it sometimes subjects one to tests that are not part of any programme. Such a test was in store for my family. My little son Igor fell seriously ill. For Tamara and me it was agony to watch his suffering. The doctors did all they could, but they were powerless. One day they told me there was no hope and I must prepare my wife as carefully as I could for bad news.

This was a great grief to us. Anyone who has experienced such a thing will understand my feelings and those of a young mother whose baby has died in her arms. Fate had struck us a cruel blow.

It was a good thing we had friends round us at the time. Without forcing their sympathy on us, they intelligently and tactfully did all they could to help us, to distract us from sad thoughts.

At this time of sorrow for Tamara and me we got a letter from the Altai. My father wrote to Tamara:

"Now, daughter, force of circumstances has untied your hands. You must either work or study. Work is a wonderful healer of all ills. Study or work means fighting and is there anyone who will say he doesn't envy a good fighter." Father's letter put new heart into us and made us take a different view of our future. At a "family council" Tamara and I decided that she would start attending medical school.

Meanwhile training for the flight continued as intensive, businesslike and strictly planned as ever. More and more new Soviet sputniks and space rockets were going up into interstellar space. We felt the day when a man would board the cabin of a spacecraft was not far away. No matter how efficient the automatic devices employed on artificial satellites and space rockets, they can only be subsidiary to a living creative mind. They can perform only what man equips them to perform.

Man had built a rocket. Man had built a spaceship. Man had launched this ship into space. But before a spaceship with a man on board could be launched, enormous preparatory work had to be done. We all remembered very well the answer Khrushchov had given to a question by an American reporter, who asked when the Soviet Union would "chuck" a man on the Moon.

"'Chuck' a man is not a very happy expression," Khrushchov replied. "We have no intention of chucking a man anywhere, because we place great value on men. We shall send a man into space when all the necessary technical conditions have been created."

We, cosmonauts, were touched by Khrushchov's words. We knew of his unfailing interest in the training of cosmonauts, in the building and equipping of spaceships. His reply to the American newspaperman underlined the necessity for careful preparation for manned flight.

Much fruitful work was done by our scientists in creating the right conditions, checking them in flight, sending animals into space, and fitting out the sputniks with reliable apparatus. Step by step Soviet science moved towards man's break-through into the Universe. The path was being paved for an unprecedented reaching out of knowledge, for penetration into the profoundest secrets of nature.

Such were my thoughts during the days I spent training in the silence and solitude of the isolation chamber.

Yuri Gagarin in Orbit

Preparations for the first manned flight into space were nearly complete. When the important stage of special preparatory training was over, we, cosmonauts, were assembled by Party organiser Nikolai Fyodorovich. He knew us all inside out. The question was whether we were ready for this complex and responsible task.

"Remember, the man who goes into space must be a man with high moral qualities, a man whose conscience is crystal clear," he said.

His confidence in our abilities encouraged us and made us think. It occurred to me that perhaps it might be time for me to apply for membership of the Party. I was turning the idea over in my mind when I reached home. Tamara greeted me with her usual smile.

"You're very serious today, Herman."

I told her about our talk with the Party organiser and what I was thinking.

"I'm getting on, you know," I joked. "I'd better ask the Party secretary about it tomorrow."

Our Party secretary, Grigory Fedulovich, was cordial, and attentive to what I had to say.

"You're quite right, Herman Stepanovich," he said finally, "I shall be glad to give you a recommendation.

I am sure the Y.C.L. organisation won't refuse you another."

As he had assumed, the Y.C.L. gave me energetic support and a third recommendation for accepting me as a candidate for membership of the C.P.S.U. was provided by Yevgeny Anatolyevich, an experienced doctor and one of our instructors.

"I request the primary Party organisation to accept me as a candidate for membership of the Communist Party of the Soviet Union. I want to be a member of our glorious Party and undertake my assignment as a Communist," I wrote in my application. The Communists did not refuse my request and I became a candidate for membership of the C.P.S.U.

Meanwhile the days before the first manned flight into space were running out. It had to be decided who would have the great honour. There were many of us well prepared for the flight and we were all naturally burning with desire to make the break-through into space. But we all warmly supported the candidature of Yuri Gagarin, who had been nominated by our commanders. This excellent man, an absolutely sincere and honest Communist, enjoyed well-deserved respect among us cosmonauts. I like people with character.

When I was appointed reserve space pilot, I was inexpressibly glad at the confidence that had been placed in me. I was ready to take over for my friend at any minute should this prove necessary.

We both felt confident. Of course, we knew the flight involved risks, there were many unknown and unknowable factors. Yet we were well aware how thoroughly this first manned flight into space had been prepared, what extensive research and experimental work had gone into the preparations. The Soviet Union's achievements in building large artificial earth satellites, the successful tests of the powerful carrier-rocket that

could put in orbit a sputnik weighing several tons made it possible, as early as 1960, to begin testing a spacecraft capable of carrying a man on a long flight.

This spaceship was called the *Vostok*. The scientists took every measure to eliminate all chance of accident and to guarantee the safety of the flight. The cosmonaut was dressed in a protective spacesuit, which would save his life if the cabin of the spaceship suddenly became depressurised. During the month preceding man's first space flight two test launchings of spaceship satellities were made. Their cabin contained a dummy pilot and the two dogs, Chernushka and Zvezdochka.

Konstantin Tsiolkovsky once wrote: "First, inevitably, come the idea, the fantasy, the fairy-tale. They are followed by scientific calculation. Then execution finally crowns the idea." We were to witness the execution of the most daring creative idea of all time. Yuri Gagarin's flight was made only when the scientists had convinced themselves that the cosmonaut, having circled the planet, would return to Earth safe and sound.

Before we set out for the cosmodrome we held a Party meeting. Its theme was: "My readiness to carry out the orders of my country." The cosmonauts took an oath to the Motherland, to the Communist Party, to the Soviet Government to fulfil their assignment honourably.

We listened attentively to Yuri Gagarin's speech.

"The flight into space that I am about to make," he said, "I undertake with a clear conscience and a great desire to perform this task as befits a Communist. I join the numerous team of scientists and workers who built the spaceship in dedicating its flight to the Twenty-Second Congress of the C.P.S.U."

Then I was given the floor.

"I know," I said, "that every one of us is capable of taking part in space flight. But if the Party and the Government entrust me with this flight, I shall spare no effort to fulfil this honourable task to the glory of our country."

The meeting ended. We went home deeply moved and elated. Then came the long-awaited day of departure for the distant cosmodrome at Baikonur. Naturally our families were worried. We tried to pass it off with jokes. But there is always something sad about saying good-bye.

"Everything'll be all right, Herman," Tamara whispered.

We arrived at the cosmodrome, a small inhabited island in the boundless ocean of the steppes. Dawn came up clear on the morning of Wednesday April 12. Nature itself seemed to be trying to create all conditions for a successful flight. A bus took us out quickly to the base of the gigantic rocket, which seemed to grow out of a graceful structure of iron girders. The final minutes were running out. Yuri Gagarin shook hands warmly with the members of the State Commission, with the Chief Constructor, with the Theoretician of Cosmonautics and other scientists, with his fellow cosmonauts. Dressed in identical spacesuits, we embraced and, as our friends put it, "clinked" space helmets.

"Dear friends, dear ones and strangers, countrymen, people of all lands and continents," said Yuri Gagarin. "In a few minutes a powerful spaceship will carry me into the distant expanses of the Universe. What can I say to you in these last minutes before the start? All my life seems to me now but a single wonderful moment...."

I looked at my friend's familiar face. His words rang out like a vow: "All I have done and lived for

has been done and lived for the sake of this moment."

I was not going into space, I was the reserve cosmonaut, Cosmonaut No. 2, as journalists have since called me. Yet it seemed to me that my friend's words sprang from the very bottom of my own heart. Gagarin spoke of his duty to the Soviet people, to all mankind, its present and its future.

"And if I have decided to make this flight," Yuri went on, and his eyes seemed to glow with fire, "it is only because I am a Communist, because I have behind me the examples of unprecedented heroism of my countrymen, Soviet people."

When he had finished his speech, Yuri wiped his forehead and went up in a lift to the platform under the entrance hatch to the cabin of the *Vostok*. He raised his hands in their red gloves and once again said good-bye.

"Till we meet again soon!"

The cabin hatch closed firmly behind him. For a few minutes we all stood as though bewitched, trying to comprehend what had happened. My head was dizzy with all I had seen and heard.

I was thinking of my comrades. They had always been ready to learn from anyone who could teach them something. I was glad to be able to call them my friends. I pictured Gagarin in his spaceman's seat. What was he thinking now, in these few minutes that were left before the launching? A vague anxiety for the life of my friend crept into my heart. Soon he reported: "I feel well. I am ready for the launching!"

Only after this report did I go and change. I quickly removed my spacesuit, helmet and overalls and put on ordinary "earthly" clothes. The half-hour count-down was announced. We who remained on the ground were perhaps more anxious than Yuri. The doctors observ-

ing his condition were satisfied: pulse—64, breathing—24. On the television screen we had a clear view of Yuri's face. His cheerfulness delighted us all. He replied to the doctors' questions by radio: "My heart is beating normally. I feel fine."

Soon the order was given to launch.

The rocket lifted slowly, then soared up in a great burst of acceleration. I felt as if a storm had passed through me and shaken me to the roots of my being.

"Good luck, Yuri!"

People quite often ask me what feelings I experienced before Gagarin took off. They probably want to know how anxious I was, how excited. I must confess that at the moment just before the rocket was launched I was more concerned with the technical side of the operation. I was listening to the orders that were given and the reports of the cosmonaut from a professional, practical point of view. There was practically no time for emotion.

When the rocket soared out of sight, the launching pad seemed very empty. The roar of the rocket engines had barely died away, when Nikolai Petrovich Kamanin said to me: "Let's go to the plane. We'll fly over to the landing area."

Like all Soviet people, we were thrilled by man's break-through into space. Our Yuri, in orbit! Yet at the same time Yuri Gagarin's flight interested us, cosmonauts, from another, practical angle. During training we had often been through the actions he was now performing in the cabin of the Vostok. As we listened to his reports over the radio, we couldn't help comparing what we had thought would happen with what was in fact happening during the flight. In Yuri Gagarin's reports we therefore sought the meaning that only those who had actually prepared for such a flight, and

those who had so carefully prepared them, could understand.

A few seconds after the launching, Gagarin reported: "Am continuing flight. G forces increasing. Everything is all right."

When I heard these words, I felt almost physically what Gagarin was experiencing at that moment. I understood just what these seconds meant to him, just what was typical of this stage of the flight. We listened to Gagarin's voice and noted the change in tone as the rocket reached great heights. The moment came when it was due to pass through the dense layers of the atmosphere and the nose cone should drop off automatically. We waited for the automatic device to operate. When Gagarin reported: "I am feeling splendid. I see the Earth, forests, clouds," I realised it had done so, and from the tone of Yuri's voice decided that he really was feeling well.

As the fuel was used up, the stages of the rocket dropped off one after the other. By the time we were airborne ourselves, we heard a fresh report from the *Vostok*:

"The rocket-carrier has separated."

This meant that the spaceship had entered orbit and its cabin was in a state of weightlessness. How was the cosmonaut responding to it? This was the question that interested me most at the time.

I had read a lot about weightlessness and tried to imagine the condition. But no human being had ever really experienced it yet. True, pilots had some conception of what it was like, because certain moments during flight in jet aircraft come near to producing it. During our training we had also, for a very short time, experienced this condition. I was impatient to know what the sensation of weightlessness was like in outer space, whether it influenced a man's vital functions and work-

ing capacity. When I again heard Gagarin's cheerful voice, "The flight is proceeding normally. I feel well. The on-board apparatus is working perfectly," I realised weightlessness was not hindering his actions.

Another extremely important factor that interested us during Gagarin's flight was the functioning of the automatic devices. The flight of the space rocket and the functioning of all its intricate mechanisms was controlled by automatic systems. They steered the rocket into its assigned trajectory, controlled the engines, discarded the exhausted stages, and at the right moment began to bring the spaceship down. The automatic systems maintained the cabin conditions needed for normal human activity. They were all working perfectly.

But ahead lay the final and, perhaps, most important stage of the flight—descent and landing. Pilots ourselves, we knew that even in an aircraft the landing is usually the hardest part of any flight. The spaceship had no wings to hold it up in the atmosphere. It would plunge into the atmosphere at enormous speed. The friction on its outer heat-resistant skin would produce extremely high temperatures. Had all this worked normally? The retro-rockets and landing systems had, of course, been tested several times by spaceships carrying animals. But I still felt worried. Suppose some unforeseen factor arose? Would the cosmonaut be able to cope if he had to steer the ship down himself? I thought of our joint training sessions, of Yuri Gagarin's confident movements, practised till they had become almost automatic, and my doubts vanished. Everything will be all right, I told myself.

We had barely time to discuss the latest reports from space before the *Vostok* began to land. A few minutes later the radio broadcast Yuri's message: "Please report to the Party and Government, and to Nikita Sergeye-

vich Khrushchov personally, that a normal landing was made. I feel well. I have no bruises or injuries."

We were all lifted up on a great wave of joy. Only when I heard these words did I fully realise the grandeur of the historic event that had taken place—man's first flight into space. In 108 minutes man had circled our planet and landed safely in his Soviet homeland, exactly as planned.

When we arrived in the landing area, I wanted to see my friend, to wring his hand, to hear all about his experiences during the flight, to learn just how this immortal journey round the world had proceeded. I saw Yuri surrounded by a crowd of scientists and generals. I thought I should never be able to get near him. But I began carefully edging my way forward. People stared at me indignantly, someone expressed his disapproval aloud. But I stubbornly wormed my way forward. Yuri spotted me and, pushing everyone aside, ran to meet me. We hugged and pummelled each other, scarcely feeling the friendly blows we exchanged.

After Yuri had rested a little, we went for a stroll together along the bank of the Volga, admiring the scenery of the great Russian river, joking and talking about the future. Yuri looked up at the cloudless sky and became thoughtful.

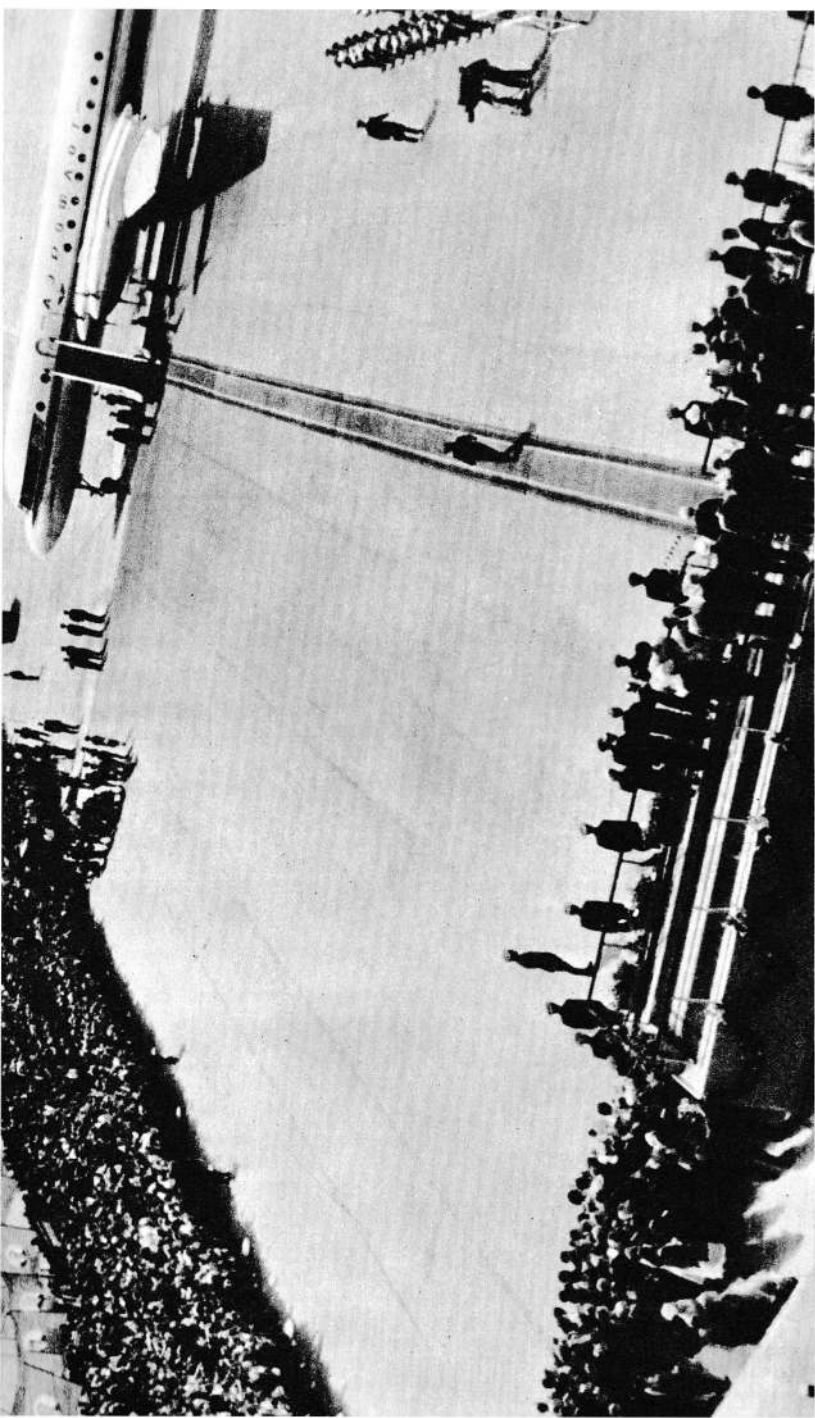
"What's on your mind?" I asked and gave a light-hearted answer myself: "I suppose you're dreaming of how our friends will go strolling like this one day along the bank of some Martian canal admiring the sunset?"

"That day," he replied seriously, "is not so far off."

No, it is not far off, the time when the first flights will be made to other planets; every day brings it nearer. While the whole world was still rejoicing in admiration at the feat of the Soviet people in bringing about man's first flight into space, we, cosmonauts,



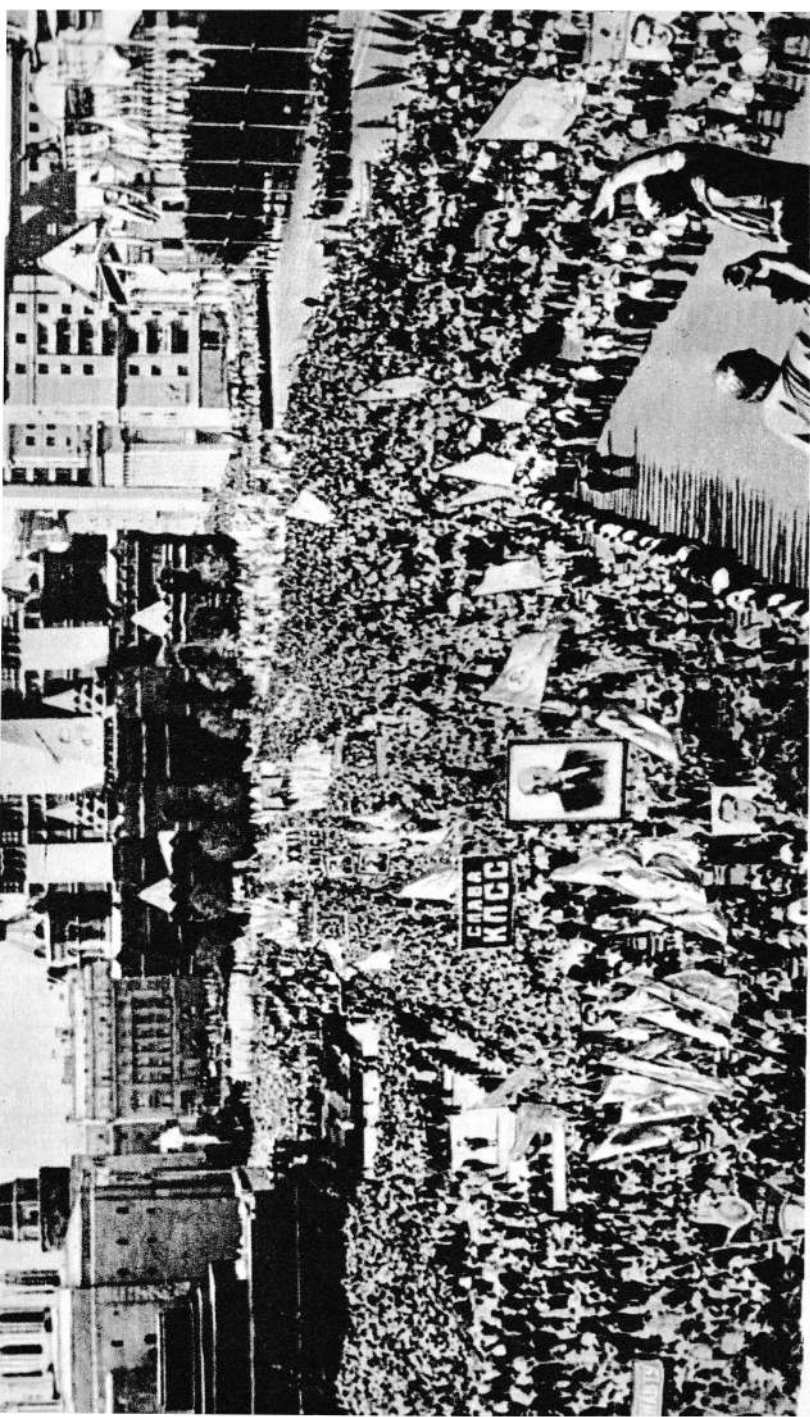
Resting on the way back from the landing area



August 9, 1961. Vnukovo Airport. Herman Titov walks towards the government stand



Moscow, August 9, 1961. The Red Square. Nikita Khrushchov, Herman Titov and Yuri Gagarin on the Lenin Mausoleum



The Red Square, Moscow, August 9, 1961. Popular rejoicing at the new advance in Soviet science and engineering

were going on with the everyday business of preparing for new flights. We made a thorough study of Yuri Gagarin's experience, which had made it possible to take a new step in space exploration. We analysed his actions in detail and drew conclusions. Our numerous training sessions were now based on the first manned flight in space.

Soon after the great popular gathering that greeted Yuri Gagarin in Moscow, during which Nikita Sergeye-
vich Khrushchov said that this immortal feat, this outstanding achievement, would live for centuries as one of man's greatest attainments, the radio brought us joyful news. For successes in the development of Soviet rocketry and Soviet cosmonautics the Presidium of the Supreme Soviet of the U.S.S.R. had awarded a second Hammer and Sickle Medal to seven prominent scientists and constructors and had conferred the title of Hero of Socialist Labour on 95 leading constructors, administrative personnel, scientists and workers. Orders and medals were received by 6,910 workers, constructors, scientists and leading technicians.

We were particularly glad to hear that, in recognition of the outstanding services of N. S. Khrushchov, First Secretary of the C.P.S.U. and Chairman of the Council of Ministers of the U.S.S.R., in directing the creation and development of the rocket industry, its science and techniques, and in the successful carrying out of the world's first space flight, by a Soviet man in the spaceship *Vostok*, which had launched a new era in space exploration, the Presidium of the Supreme Soviet of the U.S.S.R. had issued a Decree awarding Nikita Sergeye-
vich Khrushchov the Order of Lenin and a third Hammer and Sickle Medal. We, cosmonauts, are constantly aware of Comrade Khrushchov's enormous attention to space exploration. He directs the development of Soviet space science and engineering, puts

forward bold proposals and supports the creative endeavour of scientists and constructors. Yuri Gagarin in his book *Road to the Stars*, said that Comrade Khrushchov was the pioneer of the space age. All of us, cosmonauts, unanimously endorse that idea.

The long list of decorations included my own name. I was, of course, very glad that my modest work in preparing for the first manned flight into space had been so highly assessed by our people—I was awarded the Order of Lenin.

In those days we all took a great interest in Yuri Gagarin's travels abroad, which developed into a triumphant celebration of the achievements of Soviet science and engineering by the peoples of the whole world.

When he returned from his travels Yuri told us about his meetings with the working people of Manchester, with Finnish shipbuilders, with the grape-growers of Bulgaria and the steelmen of Czechoslovakia. Wherever he went he was surrounded by the sincere affection of millions of people, who saw in him a representative of our peace-loving people, a people of builders. This filled our hearts with a splendid human pride in our great country, whose confident progress under the leadership of the Communist Party is astonishing the world with more and more new achievements.

Twenty-Five Hours in Space

When I was told to prepare for the next space flight I undertook the job with tremendous enthusiasm. This was the greatest happiness I could expect in life. It was not long before we were invited to the place where an improved version of the spaceship *Vostok* was being built. The Chief Constructor pointed to the cabin and said: "Go inside. Study it. Get used to your future home."

It is hard to convey the feeling I had as I stepped into this creation of human genius. I sat down in the spaceship's comfortable seat. Although I had made myself familiar with the *Vostok*, I was astonished by the perfection of the new ship. The Chief Constructor watched me. Everything about him—eyes, smile, voice, movements—was youthful. I could see he had complete trust in me.

The preliminaries were the same as for jet aircraft. We began training in the cabin, going through the motions of flying. But the rehearsals for this space flight were brought nearer to the real conditions. We rehearsed the orders. I performed all the operations I should have to perform in the coming flight, maintained contact with the Earth, reported on the functioning of the instruments and apparatus. In short, we practised

everything till it became automatic. All the time I was "acclimatising" myself to the cabin of the spaceship, getting used to it. In space I should have to spend a whole day in it.

I trained with Cosmonaut No. 3. He is a young man of average height. He is amazingly calm, unhurried, modest and he has an independent mind. One can spend hours in his company without hearing a word from him if the matter in hand does not require it. Many of us, cosmonauts, have a strong liking for this good-natured, intelligent and determined man, who is capable of taking decisions quickly and thinking fearlessly and logically. He is the kind of man I could work with for ever. He always keeps a promise. At one time Cosmonaut No. 3 used to smoke. The doctors were worried that this might have a bad effect on his health. Of course, he is young, and smoking did not prevent him from standing heavy strains. But one day he lit a cigarette, took a long drag at it, blew out a stream of smoke, then said, "That's the last one!" and crushed the stub under his heel, as if he were crushing a poisonous spider. Since then he has never smoked.

One day we were chatting with a distinguished Doctor of Science. He showed great interest in Cosmonaut No. 3 and asked him a lot of questions on a very complex point. The cosmonaut listened attentively but appeared to be in no hurry to reply. Finally he said: "That simply can't happen in flight. This is why."

Very calmly, in clear, polished phrases, he gave a thorough and well-informed explanation of the problem.

We were preparing intensively for the flight. For us this was a glorious time of physical and spiritual fulfilment. Each working day was packed. I had detailed discussions with many specialists, listened to their advice, memorised their recommendations, did a lot of

checking and verifying. Daring and courage are no substitute for knowledge and experience. Naturally, amid all these other matters training in the cabin of the spaceship came first. We spent so much time in it that it became a home to us, a place where we knew everything down to the smallest detail. We felt we were on the brink of a new era and worked tirelessly, not wasting a single hour.

The duration of the forthcoming flight meant that much would be required of the cosmonaut's health. Along with the theoretical and practical training we had therefore to take a lot of exercise. The doctors applied the strictest standards to our health, and were constantly on the watch for any deviation from the norm.

Yuri Gagarin's flight had clarified many questions connected with space exploration. It had become easier to see just what we had to concentrate on, what should be taken into account for the next flight. The apparatus for maintaining a man's vital functions in the unusual conditions a cosmonaut has to endure such as weightlessness or tremendous G forces had been tested during the *Vostok* flight. Gagarin's observations during flight had shed new light on the way the organism is affected by all the basic factors of space flight and indicated the most effective means of ensuring normal conditions for human activity in outer space. This was taken into account during preparations for the flight of the *Vostok-2*.

Yuri Gagarin's flight showed that a man can cope with the difficulties of space travel, that in a state of weightlessness he can preserve his full working capacity, that his movements remain as well co-ordinated as on Earth, that he loses none of his ability to think clearly. But at the same time many questions that required verification and further development had arisen

during the first manned flight in space. All this had to be tested and confirmed during the second flight, which was to be much longer. I fully understood the responsibility that had been placed on me for the fulfillment of this task, and I therefore gave all my energy and enthusiasm to preparing for it.

During preparations for the flight, besides getting to know the constructors and engineers who build our splendid rockets and spaceships we formed several close friendships with scientists. We worked together and helped one another. But as yet we are only in the first stages of space exploration and spaceships will for some time to come be manned only by former fighter pilots. Practice has convinced the scientists that this is correct. Yuri Gagarin and I have often been asked why, and we explained in detail. During flight in a modern fighter aircraft critical situations that demand instantaneous comprehension of cause and effect and a lightning response are inevitable. During his daily training a fighter pilot develops a kind of spontaneity, in which thought and action are so closely combined that it is hard to define which comes first.

Cosmonaut No. 3 and I studied maps of the globe on which the route of the space flight had been charted. During its seventeen orbits the *Vostok-2*, which I was to fly, was to cross every continent and ocean. Its course embraced nearly all the countries of the world like a gigantic sinusoid. Projected on a map, it reminded one of road winding up a mountain side.

Before our departure for the cosmodrome, just as before Yuri Gagarin's flight, we held a Party meeting. Its agenda was plain and simple: "The Forthcoming Flight of Cosmonaut Titov". It was a businesslike discussion. The Communists spoke of the preparations for the flight, made concrete proposals and offered valuable comments, which were, of course, taken into account.

I was given the floor. What could I tell my comrades? They had seen everything themselves, they were well informed. I thanked the command and my friends for the trust they had shown in me and said I should devote all my strength and knowledge to the honourable fulfilment of this mission. I was overcome by a feeling that is difficult to describe in words. I had only recently been accepted as a candidate for Party membership. I regarded the flight I had been entrusted with as my first serious Party assignment. My comrades understood exactly how I felt about it. There was no need for rhetoric.

"Everything'll be all right, Herman," my wife told me, when she saw me off.

Not long before this we had walked through the summery streets of Moscow, visited the Kremlin and Red Square, then strolled along noisy, crowded Gorky Street to the statue of Pushkin, where I had laid a bunch of flowers.

We, cosmonauts, felt light at heart as we set off by air for the distant cosmodrome. Baking in the August sun yet still covered with flowers and wild grasses the steppe greeted us with its pungent scents. We were surrounded by a sea of wormwood and thyme and other flowering grasses. The horizon was lost in a shimmering heat haze. Metal was too hot to touch.

A cosmodrome is a complex set-up. Its mass of buildings reminded me of a large factory or a huge laboratory block. The smooth silvery shape of a rocket pointed skyward out of a cradle of metal girders, its enormous height dwarfing the men at work on it.

The days slipped by unnoticed while we worked with engineers and technicians, completing the final preparations, inspecting the rocket and the ship, testing instruments and continuing flight-training in the cos-

monaut's cabin. When the day's work was over, we would return to the small house where Yuri Gagarin and I had lived before. Now his bed was occupied by Cosmonaut No. 3. We were together all the time and grew even more friendly.

Time passed quickly and soon the last evening before the launching came round. There were four of us for supper: Cosmonaut No. 3 and myself, and two doctors, Evgeny Anatolyevich and Andrei Viktorovich. We ate nourishing "space food", squeezing it out of special tubes, and talked about everything except the morrow. We all knew it would not be an easy day, but we were confident the flight would be successful and add to our country's fame.

After supper the Chief Constructor dropped in and the three of us went for a quarter of an hour's walk together. It was a businesslike walk. The Chief Constructor gave us final instructions and advice and once again drew our attention to the most important elements of the flight. We walked along in the dusk, keeping in step, very close together. Cosmonaut No. 3 on the right of the Chief Constructor, I on the left. The mere sight of his stocky well-built figure, the sound of his firm tread descending crisply on the gravel path gave us added confidence in the morrow.

"During your flight test the ship's manual controls thoroughly, find out whether it is capable of bringing you down in any assigned area," said the Chief Constructor.

High overhead a shooting star left a trail in the sky like a diamond scratch on glass. The pale glow from an arc-lamp that had been switched on somewhere on the drome lighted up the scientist's big head, his unusual and impressive face. His dark eyes were narrowed, his lips compressed. For him nothing else existed but the flight that was to begin next morning. He glanced

at his watch and we realised that it was time for us to turn in. Early to bed before any big undertaking. As a boy I had acquired the habit of having a good night's sleep before exams. Tomorrow would be the toughest examination in my life.

The doctors gave us a routine check-up. My pulse was steady, breathing regular, blood pressure normal. Apparatus that registered our physiological functions was connected to our bodies. I was familiar with all these procedures and had got used to them when I was reserve for Yuri Gagarin before his flight. I felt as inwardly calm as I had then.

We went to bed in the same room. We had to open the windows wide and put fans by the beds. I heard a faint metal tapping coming from somewhere on the drome, but quickly forgot about it and fell asleep. Cosmonaut No. 3 dropped off even sooner. It grew cold during the night. I woke up and switched off the fan. Cosmonaut No. 3 was still sleeping in the same position with both hands under his cheek. There was a bunch of roses on the table. The blossoms seemed to glow in the darkness. At least, they were the brightest spot in the room. Who put them there, I don't know. But it was pleasant to see this sign of attention from our friends.

I rarely have dreams and I had none on the eve of the flight. In the morning I was woken by Doctor Evgeny Anatolyevich. I immediately felt the touch of his cool hands and opened my eyes. Andrei Viktorovich woke Cosmonaut No. 3. I had the impression that both doctors had passed a sleepless night. They were good friends and they had stayed awake to guard our peace.

"Had a decent sleep?" One of the doctors recalled that the American astronaut had slept the night only

two and a half hours before he was launched into space.

From the American press we knew that Alan Shepard's flight had at first been fixed for May 2, 1961. But a few hours before the launching a strong wind brought heavy clouds over Cape Canaveral and a storm broke in the Atlantic.

Because of meteorological conditions the flight was postponed several times and the launching date finally had to be transferred to May 5.

Shepard woke on Friday May 5, at 01:05. At 02:50 the doctors connected up their apparatus to his body to register its physiological functions. At 03:59 the astronaut boarded a bus, which took him to the launching site, where the reporters were waiting for him.

At 05:20 Shepard climbed into his cabin, which was sealed off fifty minutes later.

The count-down was suddenly interrupted by an order to replace a defective part. Two technicians were hoisted up the side of the rocket by a winch. The astronaut remained in his capsule in a state of expectation while they spent an hour and sixteen minutes making adjustments.

At 09:30 the count-down was again interrupted to check a pressure gauge, this time only for a minute.

Later Shepard told correspondents: "The wait was much longer than we expected."

In the tenth minute of Shepard's flight along a ballistic trajectory the capsule began rapid deceleration—the moment when the pilot suffers maximum strain. According to the American press, Shepard's body, which on Earth weighs 73 kilograms, was for four seconds ten times that weight. Shepard maintained contact with the Earth, but his speech was blurred. This did not surprise anyone. During centrifuge tests this was the normal reaction.

In the course of its quarter-of-an-hour flight the capsule reached a height of 184 kilometres. From a height of 2,100 metres a red-and-white parachute carried it gently down to the surface of the Atlantic. Four minutes after landing on the water the capsule and its pilot were picked up by helicopter, and in another seven minutes landed on the flight deck of the aircraft-carrier *Lake Champlain*.

I have seen photographs of the American astronauts Alan Shepard and Virgil Grissom. They are obviously very fit men who look capable of much more than they had to do, but who did all that the level of American technical development allowed. Their flight measured up to the achievements of American science.

I remembered these Americans only for a second, then forgot about them. I had plenty of my own worries to think about.

Ahead lay another medical examination, then setting-up exercises, breakfast, and putting on the spacesuits. After this we were driven in a special light-blue bus to the launching site, where, like a majestic monument to our time, the tall slender rocket stood with the spaceship mounted in its nose.

I love everything that is tall and reaches up to the sky: tall buildings, ancient spires, building cranes, radio masts, mighty oaks, ship timber. But all of these together could not compare with the breath-taking beauty of the space rocket, its mighty body poised for this leap into the heavens. I felt sorry at the thought that this wonderful creation of human reason and craftsmanship must, when it had put the ship into orbit, burn to nothing in the upper air.

It was a beautiful morning. The sun rose steadily. In the cloudless sky the birds were singing, cheerful music was coming from somewhere. It all fitted in with my own elated mood. Judging by the faces of the peo-

ple round me, they were also experiencing a feeling of wonder and inspiration. No one doubted the success of what we were all doing together, united by the common task, by the same great aim.

The only people left on the site was the launching crew. I said good-bye to my fellow cosmonauts, put my arms round Cosmonaut No. 3 and held him tight for a second. In his spacesuit he was just as clumsy on Earth as I was. As I looked into the dark eyes of the Chief Constructor I saw something I had never seen there before—paternal affection, the exactingness of a commanding officer, and anxiety for my safe return to Earth.

I reported to the Chairman of the State Commission that I was ready for flight. An extremely civilian person, in reply to my clear-cut military report he wished me in a simple homely fashion good luck on my journey and offered me his big working man's hand. When I had climbed the iron ladder to the platform at the entrance to the lift, I addressed those who were seeing me off and all Soviet people.

"Dear comrades and friends!" I said after a moment's hesitation. "I have the great honour to make a new flight into the expanses of the Universe in the Soviet spaceship *Vostok-2*. It is hard to express in words the feelings of joy and pride with which I am overflowing.

"We, Soviet people, are proud that our beloved country has launched the new age of space exploration. I have been entrusted with an honourable and responsible task. My good friend Yuri Gagarin was the first to blaze the road into space. That was a great feat by a Soviet man."

I scanned the group below me, still hoping to see among them my closest friend. Yuri and I had agreed beforehand that he would definitely attend the launching of the second manned space flight. But at this time

he was far away in the western hemisphere, a guest of the peoples of South and North America. Nevertheless I believed he would fly home if not in time for the launching, at least to the area in which the *Vostok-2* was to land, and that we should embrace in the same spirit of brotherhood in which we had embraced after his flight.

Everything I said was recorded on tape. I glanced at the Chief Constructor and the engineers and workers surrounding him. He looked very young, calm, extremely tense yet equally cool and self-assured. He, too, dreams of flying into space in a ship of his own design. I smiled at him and went on:

"In these last minutes before the start I want to express my heartfelt thanks to the Soviet scientists, engineers, technicians and workers, who built the fine spaceship *Vostok-2* and prepared it for flight.

"This new space flight that I am to perform I dedicate to the Twenty-Second Congress of our dear Communist Party."

As I spoke these words, I thought how when the *Vostok-2* went into orbit they would be heard over the radio by all Soviet people, by my teachers and friends, by my father, mother and sister in the Altai, and by my wife in Moscow. You dear, good people, I was with you heart and soul at that moment!

I thought of Lenin. As a child, when I joined the Young Pioneers I had given my word to be true to the cause of Lenin; I had worn his image on my Y.C.L. badge over my heart; I had been accepted as a candidate for membership of Lenin's Party before man's first flight into space. And as I thought of all this, I remembered how, when he met Yuri Gagarin in Moscow, Nikita Sergeyevich Khrushchov, standing on the Lenin Mausoleum had said that more and more Soviet people would blaze new trails into space. I was to have

the great happiness of making one of these new flights. Concluding my speech I said:

"In these minutes I want once again to thank warmly the Central Committee of our dear Leninist Party, the Soviet Government, and dear Nikita Sergeyevich Khrushchov, for the trust they have placed in me, and to assure them that I shall apply all my strength and ability to carry out this honourable and responsible task.

"I am deeply confident of the success of the flight.

"Till we meet again soon, dear comrades and friends!"

A sudden thrill of impatience made me wish the flight would begin soon. I entered the cabin of the *Vostok-2* and the hatch closed firmly and soundlessly behind me. I was alone. Now—forward! I glanced at the familiar instruments whose invisible threads would link me with Earth while I sped in my distant orbit. The sight of them calmed me at once. We, cosmonauts, have got used to these instruments during our training and we believe in their almost human intelligence.

The cabin was as comfortable as a room. In the pilot's seat, which was rather like a deck-chair, one could sit or lie, work and rest. Everything was easy to see and handle, every switch, every tumbler was within easy reach. I could steer the ship in flight, maintain radio contact with Earth and make notes in the log-book. The constructors had provided all the conditions a cosmonaut needs for productive work, had made every arrangement for his convenience and even comfort.

It was announced that there were ten minutes to go before launching. The Chairman of the State Commission inquired how I felt.

"I feel wonderful," I replied and thanked him for his attention. Every fibre of my being was alert for what would happen in the next few minutes.

The final seconds elapsed. At exactly 09 : 00 Moscow time the launching order was given:

"Lift off!"

With a feeling of delight I had never experienced before I replied:

"Lift off it is!"

At that moment I felt the millions of horsepower packed into the great rocket engines leap into combat with the forces of gravity.

"Go it, lass!" I shouted.

The rocket lifted from the launching pad and paused for an instant, as though overcoming a strong gust of wind. A thunderous roar penetrated the cabin, the rocket began to vibrate violently and my whole body was crushed by an incredible weight. The G-s bore down on me and I thought what a good thing it was that we, cosmonauts, had trained so hard on the centrifuges and vibrostands, that our organisms were accustomed to all aspects of space flight.

I stood up well to the noise of the engines, the vibration, and the constantly increasing G forces while the ship was going into orbit; consciousness, sight and hearing remained the same as on Earth. In the very first seconds of the flight I started to work. I watched the instruments, maintained two-way radio contact with the command post and observed the Earth through the portholes. The horizon got wider and wider and the Earth spread out below me bathed in bright sunlight. This was something many times more magnificent than the views I had seen from jet aircraft.

I felt the separation of every stage of the rocket as it carried the ship higher and higher. The chronometer told me that the *Vostok-2* was just about to enter orbit. This was the moment when weightlessness should occur and I prepared myself for it. But it came about smoothly, spontaneously, after the last stage of the rocket

had dropped off. The first impression was rather strange, as though I had turned over and was hanging upside down. But in a few seconds this passed off and I realised that the ship had gone into orbit. This was indicated by my instruments and confirmed by the scientists who were tracking the *Vostok-2* from Earth. They radioed the parameters of the flight: perigee—178 kilometres, apogee—257 kilometres, angle of inclination to the equator—64 degrees 56 minutes. I was in orbit. Here there was no rain, no snow, no storms—nothing but emptiness. Now I could set about the rest of the flight programme.

The basic tasks of the flight of the *Vostok-2* were investigation of the effects on the human organism of prolonged flight in orbit and subsequent re-entry and landing on Earth, and investigation of man's working capacity during prolonged weightlessness. There were other tasks as well, but they were all subsidiary to these two main ones. For each of the seventeen orbits round the planet there was a strict time-table of operations that the cosmonaut had to perform. Every minute was accounted for and had its allotted task—when I was to talk to Earth by radio, when I was to take over the manual steering, when to eat and drink, when to sleep and wake.

An intolerably bright sun was shining in through the portholes and, to save my batteries, I switched off the light. Not for long, however, because the *Vostok-2* soon entered the Earth's shadow and was wrapped in dark, impenetrable night. The big cold stars shone like diamonds on the black velvet of the skies. As I looked at them I could not help remembering Lermontov's line:

"... And star with star converses."

After an hour's flight through the pitch-dark night I switched on the manual steering gear, as the plan of work required. I must admit that I did this not without

The "celestial brothers" Yuri Gagarin and Herman Titov





Tamara Titova (right)
visits Valentina Gag-
arina and her little
daughters Lenochka
and Galya

Describing the course of the Vostok-2





Herman Titov, Hero of the Soviet Union, Cosmonaut of the U.S.S.R.

some inward anxiety. No man in the world had ever yet made a spaceship obey his will. Would the *Vostok-2* obey mine? I took a firm grip on the controls. The *Vostok-2* did what I wanted and I steered it as calmly as if I were driving a car on Earth or flying a jet. It turned out to be quite easy. I could orientate the spaceship and steer it as I wished. With my hand on the control stick I felt myself captain of a splendid craft. I was not aware of any particular strain, in fact I felt no strain at all. It was all quite usual, like being in a plane.

The moment was approaching when I should emerge from the Earth's shadow. This happened rapidly. The second dawn that day began for me when I saw a bright band of orange on the horizon. Above it rose all the colours of the rainbow and I had the impression of looking at the sky through a prism. The next moment the sun's rays burst through the portholes into the cabin. Impenetrable night was followed by another brilliant day. I observed the Earth with interest. I saw large rivers and mountains and was able to distinguish ploughed fields from unreaped fields by their colour. The clouds were clearly visible. They could be distinguished from snow by the bluish shadows they cast on the Earth. The Earth's horizon was fringed with a pale-blue aureole.

The globe on the instrument panel, which revolved in co-ordination with the movement of the ship, showed that the *Vostok-2* had already completed its first orbit round the Earth. This was confirmed by the clock. What Yuri Gagarin had done on April 12 had been repeated and the *Vostok-2* was continuing its flight.

At 10:38 Moscow Time, while flying over the territory of the Soviet Union, I reported by radio to the Central Committee of the C.P.S.U., the Soviet Government and Comrade Khrushchov personally:

"The flight of the Soviet spaceship *Vostok-2* is proceeding successfully. All the ship's systems are functioning normally. I feel well. . . ."

Presently a radio message from Comrade Khrushchov reached me in space and I felt my heart beat faster. In his reply Comrade Khrushchov said that all Soviet people were infinitely glad about my successful flight. He sent me his hearty congratulations and was awaiting my return to Earth. During the second orbit, while I was flying over the African continent, I sent greetings to the peoples of Africa fighting against colonialism.

All the continents of the globe, when observed from space, differ from one another not only in shape but in colour. The basic colour of Africa is yellow with dark-green splashes of jungle. Its surface resembles the spotted skin of the leopard. I immediately recognised the Sahara—a great ocean of golden-brown sand, devoid of any sign of life.

In my childhood I had read of the explorer David Livingstone, who was one of the first to describe the flora and fauna of this mysterious region and to give an account of the life of the tribes and peoples that inhabit it. I had also read, of course, that interesting and instructive book *Africa of Dreams and Reality*, by the Czech explorers Jřží Hanzelka and Miroslav Zikmund, which they illustrated so lavishly with their own photographs.

The yellow Sahara ended abruptly and I saw the bright expanse of the Mediterranean, the most beautiful of all the seas I observed during the first two orbits. A bright blue, as though painted with ultramarine, it floated past the porthole and disappeared in a light mist.

In a few more minutes I was once again over my own country. It is different from all other countries of the world. Nowhere do you see such huge fields, such

huge tracts of forest, such a multitude of great rivers.

From this great height I could not see the factories. But I knew, they were down there somewhere, chimneys smoking, furnaces glowing, tended by the great army of builders of communism. Their titanic labour was reflected in the spaceship *Vostok-2*, as the sun is reflected in a dewdrop.

I could not see pitheads or the railways but I had an excellent view of the artificial seas, uplifted like brimming bowls by the dams of hydropower stations. These were signs of the new age—the great epoch of building communism. When I was at school in my home village of Polkovnikovo I wrote an essay that began with Lenin's words: "Communism is Soviet power plus the electrification of the whole country." It was not long since those happy days but could I ever have imagined then that I should be able to take in our whole transformed country in a single glance!

During the second orbit, as I flew over Moscow, I replied to the message of greeting from the head of the Soviet Government. I did not write it, I dictated it.

"Convey my deepest gratitude to Nikita Sergeyevich Khrushchov for his fatherly care," I said.

These words went on the air and were automatically recorded on tape.

"Thank you very much!" I said and repeated it: "Thank you very much!"

And knowing that Comrade Khrushchov was interested in how the flight was proceeding, how the programme was being fulfilled, I added:

"I shall certainly carry out the assignment of the Party and the Government according to the flight programme in full. Everything is going splendidly. Everything is all right on board. Tell this to Nikita Sergeyevich."

The radio message summed up the results of the first

stage of my flight. At 11:48 the Vostok-2 completed its second orbit and the third magnificent orbit began.

All the time I kept transmitting data to the space-flight command post, and also to the co-ordination-computing centre situated hundreds of miles away from the cosmodrome. A huge number of experts took part in the processing of data received from space, in providing the information needed for the flight of the Vostok-2. I knew that hundreds of attentive eyes were fixed on TV screens, watching everything that happened in the cabin, every movement I made. Doctors were constantly observing the condition of my organism by means of television and telemetry. Highly sensitive apparatus registered the bioelectric and mechanical activity of my heart, my rate and depth of breathing, my temperature.

Professor Vladimir Ivanovich Yazdovsky and other doctors on Earth knew more about my heart than I knew myself. If I made a mistake in transmitting my subjective impressions, as a pilot sometimes does when flying blind, these numerous instruments and super-sensitive apparatus would immediately register my error. The study of the effect of all the factors of space flight on the human organism rested on a firm scientific base, on the widest application of medical technology.

In the foreign press much has been written about the harmful influence of space on a man's psychic condition. Many experts claimed that a man in space would be affected by depression, that he would suffer from an oppressive sense of loneliness. But not for one second did I feel cut off from my people, from my friends and comrades on Soviet soil. Yuri Gagarin, who learned of the launching when he was a guest at the Canadian farm of the famous American industrialist Cyrus Eaton, winner of a Lenin Peace Prize, cabled his greetings. After a journey half way round the world,

the cable was transmitted by radio to the *Vostok-2* and gave me tremendous pleasure.

"Dear Herman," wrote Yuri Gagarin, "with you heart and soul. I embrace and kiss you, my dear friend. Following your flight excitedly. Confident complete success will enhance fame of our great country, our Soviet people. Till we meet again soon!"

I acknowledged these warm words and at once sent Yuri Gagarin my cordial thanks. As always we were together and our hearts were beating as one.

Sometimes I forgot that attentive TV eye watching me all the time and transmitting my image to the screens at receiving centres on Earth. Becoming absorbed in my notes, I held the log-book up in front of my face and kept it there a few minutes. Then I realised what I was doing and quickly placed it on my knees. My friends told me afterwards that I looked as if I had sensed their displeasure at being deprived of the opportunity of observing me for this very short time.

During the whole flight, from launching to landing, the radio communication installations and all the light and compact radio apparatus worked splendidly. Two short-wave transmitters operating in parallel, and a third ultra-short wave transmitter, all of them semiconductor sets, the receivers, the microphones in my space helmet and those mounted in the cabin, as well as sensitive earphones and loud-speakers made it possible to transmit from every point in orbit all the information that was needed, to receive instructions from Earth, and to converse by radio with the Chairman of the State Commission, the Chief Constructor, the doctors and various experts. I wanted to thank the Theoretician of Cosmonautics, the distinguished Soviet scientist under whose direction the complex computation of the course of the *Vostok-2* had been made. But he had done his job and did not come to the microphone.

Audibility was excellent. I could recognise the voice of people I knew by the timbre and intonation of their voices and even imagined the expressions on their faces. The cabin was equipped with a sending key in case of bad audibility. But the reception and transmission of radio waves was so clear that I never used it.

The *Vostok-2* was also equipped with a broadcasting-frequency receiver. I switched it on and heard the familiar voice of a Moscow radio announcer reading an official communiqué saying that a new Soviet spaceship had been launched, and that it was piloted by citizen of the Union of Soviet Socialist Republics Herman Titov. It was strange to hear myself being spoken of in such impressive terms, to hear someone describing what I was actually in the process of doing. "I expect father, mother and sister and my wife are listening to this communiqué," I thought. "They must be worried and excited."

The receiver picked up many of the world's radio stations. The voices of friends and strangers came over the air, breaking in on one another. I enjoyed listening to a few lively Strauss waltzes. When these were over the cabin was invaded by a frantic blare of jazz. The crashing of drums and the wolf-like moan of saxophones gave way to that sweet Russian song about evenings near Moscow, then the cheerful *Enthusiasts' March*.

Now and then the Voice of America came on in Russian. It was broadcasting some queer stuff about God, angels and saints. A Japanese station was giving a Russian lesson. Our own Far East station treated me to *The Amur Waves*. I heard the tune several times. I was even asked if I liked the programme. I said I did, but couldn't they change the record. The Far East station replied "your message understood" and then, for the umpteenth time, put on *The Amur Waves* again.

The Far East. The fishy Okhotsk Sea. Kamchatka,

the Kuril Mountain Chain. Further south the Islands of Japan. Japan—land of volcanoes, earthquakes and cherry orchards. When I thought about it, I remembered that today was August 6. On this day sixteen years ago Colonel of the U.S. Air Force Robert Louis dropped the first atom bomb on the Japanese city of Hiroshima. The hellish explosion destroyed the city, killing or maiming hundreds of thousands of civilians, old men, women and children. People are still dying in Japan, their blood poisoned by the fatal radiation from that explosion.

If August 6, 1945 has gone down as one of the blackest days in human history, August 6, 1961, judging by the reaction of public opinion all over the world, will be remembered as one of its brightest. Time and again as I circled the Earth I heard the radio stations of all countries, each in its own language, talking about this new achievement by the Soviet people. Many commentators linked up the Soviet Union's space victory with our Communist Party's recently published Draft Programme. A copy of *Pravda* with the text of the Draft Programme with pencil jottings all over it had been my constant companion during preparations for the flight. There are many inspiring thoughts for humanity in the new Programme and I read it with the same delight as I had experienced many years ago when I first read the *Communist Manifesto*, created by the genius of Karl Marx and Frederick Engels.

I heard the voices of radio stations of all continents mentioning the name of Nikita Sergeyevich Khrushchov and talking about the Soviet spaceships, and I sent back greetings from the *Vostok-2*. While I was over Europe during my third orbit I transmitted greetings to the peoples of the Soviet Union and Europe, and while I was crossing the Southern Hemisphere, I greeted the peoples of South America. When the *Vostok-2*, after

covering more than 200,000 kilometres through space, passed over China in the region of Kuangchou during its fifth orbit, I sent similar greetings to the peoples of Asia. Over Melbourn I greeted the inhabitants of the fifth continent—Australia. I also greeted the peoples of North America from space.

Afterwards, when I had returned to Earth and was looking through a pile of newspapers and magazines, I came across an item in an American newspaper which said the voice of the *Vostok-2* rang out like a bell. It was referring to greetings I had sent in my own language—they had been understood by all the peoples of the world.

Nearly all through the flight my space helmet was open. It was more comfortable to work like this. There was no need to close the face-piece, for the ship's cabin remained perfectly sealed all through the flight. And, of course, it was much easier to feed oneself with the helmet open.

The programme had fixed the time of the first meal, dinner, during the third orbit. Twelve o'clock came round. It was quite a long while since I had breakfasted on Earth and, although I didn't particularly want to eat, I started on my dinner. There were no plates, spoons, forks or napkins in the cabin. I reached out to the food container and pulled out the first tube. On Earth it weighed approximately 150 grammes; in space it weighed nothing. The tube contained a soup-paste, which I squeezed straight into my mouth. For the second course I ate a meat and liver paste in the same way and washed it all down with black currant juice, also from a tube. A few drops of juice spilled out of the tube and hung like berries in front of my face. It was interesting to watch them floating in the air, quivering ever so slightly. I caught them on the cap of the tube and swallowed them.

It is possible to eat and drink in space as easily as on Earth. In accordance with the flight programme I had dinner, supper and, on the next day, breakfast on the same kind of space food. I took it not only from tubes but also in solid form. I bit off small pieces of bread and chewed and swallowed vitaminised pills. Naturally, I also drank water from a special apparatus. Everything went well, in "earthly" fashion. In short, the problem of feeding a man during a prolonged space flight can, in my opinion, be considered solved—the spaceship has only to carry sufficient food.

Not far away from me in the cabin an ordinary manually operated cine camera that I had taken with me to record the full beauty of the view a man gets when he is in orbit had been floating about all the time. It was an ordinary Konvas reporter's cine camera loaded with a colour film. I took several shots while I was entering the Earth's shadow and emerging into the sunlight. I also took the starry sky. Twice I saw the Moon. It was waning. Its sharp sickle looked the same as from Earth. I had the impression that the ship was standing still and the moon was floating rapidly horns first past the porthole.

The Moon reminded me of Gogol's *Christmas Eve* and I pictured a Ukrainian village powdered with snow and boys and girls singing in the street. Shining in the darkness, the Moon looked so close that I felt I need only open the porthole to reach it with my hand and pop it in a sack, as Gogol wrote. But everything has its day. What was a fairy-tale in Gogol's time is becoming reality. One of us, cosmonauts, will be the first to fly round the Moon, to visit its craters and even to bring back with him to Earth a sack of moonstones.

I couldn't resist the temptation of taking myself a couple of times, and winking at the camera. Then I threw up the log-book and took a few shots while it

was floating overhead in the cabin. I am not an expert cameraman, but although the shots were not very good, they do to a certain extent supplement my impressions of the flight.

Before the ship emerged from the Earth's shadow it was interesting to watch the evening shadows moving over the Earth's surface. One section of the Earth was bright with sunlight, the other was in complete darkness. Between these two sections there was a rapidly moving strip of greyish shadow. Above it hung clouds of a pinkish hue.

Everything was unusual, colourful and impressive. Space awaits its artists, poets and, of course, its scientists, who could see everything with their own eyes, fully comprehend what they saw and explain it. The Tien Shan Mountains and the peaks of the Himalayas mantled in dazzling white snow impressed themselves on my memory. The mountain chains ran at an angle to the *Vostok-2*'s line of flight and the mountains stood out like ricks of straw with blue gulfs between.

As I flew round the globe I saw for myself that there is more water than land on the surface of our planet. The long lines of the waves of the Pacific and Atlantic Oceans pursuing one another to their distant shores were a magnificent sight. I watched them through a power 3 and a power 5 telescope.

The oceans and seas, like the continents, have distinctive colourings. The range of colours is as rich as the palette of the Russian seascape painter Ivan Aivazovsky, extending from the dark-blue indigo of the Indian Ocean to the salad green of the Caribbean and the Gulf of Mexico.

Once I saw below me the lights of a big city, glowing like gold dust in the darkness of the night. The globe on the instrument panel told me that the *Vostok-2* was passing over Rio de Janeiro, one of the biggest cities

of South America. Yuri Gagarin had visited Brazil and millions of people had heard his story and seen him in person. As I admired the lights of Rio I thought to myself that perhaps even now some of our Brazilian friends might be listening in to the *Vostok-2*.

The ship went on making orbit after orbit, apparently quite unaffected by time. But the orbits were no mere endless repetition of the same thing. They were all different and each had something new and individual of its own. There was a lot of work to be done. I again took over the controls. This time more confidently, because I knew now how the ship would behave. It again obediently responded to my will.

According to the flight time-table the time for rest was approaching. It was time for me to sleep. This schedule had been wisely thought out on Earth. I was now sufficiently tired. The *Vostok-2* had already made six orbits and been flying through space for nine hours. In addition, the prolonged state of weightlessness had affected me physically, particularly my vestibular apparatus, and at times I was aware of unpleasant sensations. These were caused by the specific functioning of the vestibular apparatus in conditions differing from those on Earth. The state of weightlessness particularly affected the so-called otoliths, small stones in the liquid-filled capsule of the internal ear. Under normal conditions the otoliths move when the head is moved and stimulate various nerve endings in the walls of the internal ear, which transmit the necessary information to the brain. When deprived of gravity in orbit, the otoliths cannot inform the brain correctly and keep the cosmonaut properly oriented in space.

To avoid these effects I adopted my initial position and tried to make as few sudden movements of my head as possible. Besides relieving me of the fatigue I had begun to feel, sleep would help me to some extent

to get rid of the unpleasant sensations connected with the defective functioning of the vestibular apparatus that had naturally occurred owing to weightlessness.

At 18:15 the *Vostok-2* passed over Moscow. It was time to sleep. But I couldn't help sending a short radio message to our capital. In it I said that everything was still going very well and described my comfortable surroundings. Then I wished the people of Moscow good-night:

"I'm going to sleep. I don't know about you, but I'm going to sleep."

Radio communication ceased. The receivers remained switched on but, as we had agreed, no one disturbed me with questions and not a single sound was heard from Earth. The Earth stations considerably preserved my peace. The evening of August 6 till 02:00 hours, August 7, was set aside for me to rest and sleep.

So that I should not float out of my seat, I strapped myself in, then willed to sleep. We, cosmonauts had been taught by our doctors how to fall asleep instantly, whenever we wished, and how to wake at precisely the right moment. I closed my eyes and fell asleep. Radio-telemetric control of the ship's apparatus and the apparatus for maintaining the vital functions continued to operate noiselessly.

I was woken by the feeling of being in a strange position. My arms had lifted of their own accord and were suspended in mid-air. This was the effect of weightlessness. I slipped my hands under the straps and glanced at the illuminated panel of the special meter, which indicated that the ship was in its eighth orbit. I woke up again during the tenth, and again during the eleventh orbits, glanced at the panel and went off to sleep again. One sleeps lightly in space. There is no need to turn over, for neither the arms nor legs become cramped. It is like floating on the waves of the sea.

Herman Titov in Berlin, capital of
the German Democratic Republic







Herman Titov was warmly received in the Democratic Republic of Viet-Nam. On the right, Ho Chi Minh is seen welcoming the Soviet cosmonaut



Mongolian People's Republic. Right to left: Sambu, Chairman of the National Assembly, Herman Titov and his wife Tamara Titova

I was due to wake up properly and start work at precisely 02 : 00 hours, but I slept an extra 35 minutes. The people on Earth understood this and refrained from waking me so that I could have a good rest. Two minutes after waking up and doing my toilet I started work. One treasures every second in space and I grudging the hours I had spent sleeping.

All the equipment carried by the ship was working like clockwork. I had rested and felt fresh and cheerful. The unpleasant sensations had disappeared. I transmitted all this to Earth:

“No dreams. Slept like a baby.”

Having reassured my comrades on the Earth with this first message after rest, I did my setting-up exercises. For us, cosmonauts, these exercises have for long been an essential part of our routine. If we missed them in the morning we should feel out of sorts all day.

Setting-up exercises in space? In the condition of weightlessness, when one's own body has no sense of gravity at all, one would think physical efforts would be impossible. But this had been taken into account. Our doctors and P.T. instructors had worked out an ingenious set of exercises. For example, the cosmonaut had to try and pull himself up out of this seat while he was still strapped in. This was one of the exercises for the stomach muscles. Other movements were also found to limber up the joints and put the muscles into working trim.

The setting-up exercises stimulated the action of my heart and livened me up. I acquired fresh energy and felt ready for new tests. I still had a very long way to go—five more orbits round the Earth, over 200,000 kilometres through space.

I remembered I had promised to write a few autographs for my friends and wrote them while I was flying somewhere over the jungles of India.

The *Vostok-2* was making its orbits with mathematical precision, punctually to the minute. I checked this by the watch on my wrist. On entering the Earth's shadow I noted the time and when the ship had sailed through the night and come out again on the sunny side I watched the hands of the watch to see when it would again enter the shadow. This occurred on the eighty-ninth minute, exactly as had been calculated on Earth, and as I had been informed in space at the very start of my flight.

I had a fine call-sign—*Orel* (Eagle). It was like a second name, to which I responded when I was in orbit. Every cosmonaut had such a name. When I heard somebody say "Lilies of the Valley" from Earth, I realised that one of my friends was talking to me over the radio. We often sang a ditty about lilies of the valley that my friends and I had made up for a joke. The flight, which had cost me quite a lot of endurance and perseverance, was nearing its end, and my friends, knowing that the difficult final stage—landing—was in the offing, were trying to give me strength and encouragement.

I didn't lose my feeling of elation for a minute. It grew with every hour that brought me nearer the finish. I was overjoyed and I had good reason to be, for every item in our scientific programme was being fulfilled. All suppositions were proved by the successful progress of the flight. I looked at the food containers. There was enough food left for ten days. If need be, the flight in orbit could be prolonged.

I had no doubts about making a successful landing. I believed in the ship and believed in the accuracy of the computations made by the mathematicians under the direction of the Theoretician of Cosmonautics, of whom all the cosmonauts had become very fond. He rarely talked, but we knew that every word and statement he made was incontrovertible.

I kept making fresh entries in the log-book; it contained no corrections or erasures. There were special pages allotted to each orbit. I painstakingly entered not only the required information but also my impressions and feelings. I wanted to write what I thought about the rocket that had put the *Vostok-2* in orbit: "We have powerful rockets. The credit for the space flight should be equally divided between the cosmonauts and those who build, equip and launch the rockets."

This notebook with the emblem of the Soviet Union stamped on the cover became a kind of diary. Besides my regulation entries it contained such notes as this: "I can hear Moscow broadcasting *Evenings Near Moscow*." Once I happened to pass my hand over my cheek and heard a faint crackle. I had grown a bit of a beard. I thought to myself it would be nice to have a shave before returning to Earth, but I had left my electric shaver behind on the cosmodrome. I wanted to make a note about my beard in the log-book, and also about the unusual way my childhood dream of making a trip round the world had come true, but that was outside the scope of my task.

The spaceship had entered its seventeenth orbit, but my attention did not flag for a minute. The warm expressive voice of the Chief Constructor reached me through my earphones:

"Are you ready to land?"

Without the slightest hesitation I replied: "Ready!"

To be quite honest, I wanted to be back on Earth. Space is all very well, of course, but home is best. There is nothing better than our Mother Earth, where you can work, meet your friends and breathe the wind of the fields.

The spaceship's descent from orbit, its re-entry into the dense layers of the atmosphere and the landing itself was an extremely complex and responsible task.

The slightest error at this final stage could cause a great deal of trouble. One must remember that everything happens at terrific speed, the ship's heat shield is subjected to enormous temperatures, and the approach begins at a huge distance, thousands of kilometres from the landing area. The vital thing in such a situation is clear thinking. I have always been an enemy of hasty decisions, so I naturally wanted to consult the Chief Constructor once again.

I asked him a few questions on points that were worrying me and immediately received definite answers. Based on the data of the flight, they were a further development of what he had talked about to Cosmonaut No. 3 and myself during our evening walk on the eve of the launching. He made a pause to allow his final words to sink in.

"Act as you have been acting up to now and everything will be all right," he said in conclusion. His voice was confident and calm, as if he were discussing some everyday matter. For the n-th time during the flight this scientist's iron confidence communicated itself to me and I again felt sure that everything was ready on Earth to bring the ship down in the appointed area.

I returned to my routine work. While I had been in the spaceship cabin I had neither remembered the past nor dreamed of the future; I had been entirely absorbed in the present, which was so rich and wonderful. At the time indicated in the schedule I was informed that the automatic descent system was about to be switched on. The ship's orientation system worked with exceptional accuracy. Then the retro-rockets were fired to reduce the speed of the Vostok-2. The ship left orbit and dropped towards the dense layers of the atmosphere.

I was interested in the transition from weightlessness to normality. Yuri Gagarin had told me it was

difficult to detect the exact moment. And my weightlessness did indeed vanish of its own accord. Suddenly I felt I was sitting firmly in my seat. To lift an arm or leg required a certain effort.

The *Vostok-2* entered the dense layers of the atmosphere. Its heat shield warmed up rapidly, making the air flowing round the ship brilliantly luminous. I did not close the shutters of the portholes because I wanted to watch the details of what was happening outside. The soft pink glow surrounding the ship deepened into scarlet, then purple, and finally turned crimson. I glanced automatically at the thermometer—the temperature in the cabin was normal: $+22^{\circ}$ Centigrade. I screwed up my eyes to watch the vivid blaze of colour all round. Beautiful and rather awe-inspiring! In addition, the heat-resistant glass of the portholes was gradually turning yellow. But I knew there was no danger. The ship's heat protection had been reliably flight-tested.

Weightlessness disappeared entirely. The growing deceleration forces clamped me down into my seat with tremendous pressure. It felt as if some huge weight was crushing my body. I hope it will let up soon, I thought. And it did. The strain gradually began to relax. It grew lighter and lighter. Soon it disappeared altogether. The glare outside also faded. All the systems had worked perfectly. The ship was moving accurately towards the landing area.

I knew this part of the country. I had been there to meet Yuri Gagarin, when he returned from space. I had admired his fearlessness and reflected that in the field where he landed an obelisk would probably be erected to commemorate that memorable day—April 12, 1961. During the first hours of the flight neither the past nor the future had existed for me and I had lived

entirely in the present; now I allowed myself to think about all kinds of things.

I made up my mind I would definitely enter the Zhukovsky Air Force Engineering Academy. I knew that on the eve of the launching of the *Vostok-2*, my wife had been due to take an examination at the medical school. I hoped her worrying about me had not put her off her stroke.

The thought of my wife started a train of reminiscences. I remembered how we had got to know each other, how we had fallen in love, how I had recited Pushkin and Yesenin to her, how we had got married and helped each other in every way. She understood me as no one else could. I pictured her in my mind's eye, her smooth face, her figure, her walk. I had never loved her so tenderly as now, flying in space, thousands of kilometres away.

Then I remembered all the things my father had taught me, all my mother had given me. I had a vision of my sister and a few half-forgotten scenes from childhood. I remembered the teachers at school, my flying instructors, Colonel Podosinov, all the people whose constant care and attention had gone into making me a real Soviet person.

The *Vostok-2* was designed for two methods of landing its pilot. He could land either in the ship's cabin or use the ejection seat and come down by parachute. I was permitted to use either system at my own discretion. Since I was feeling well, I decided without hesitation to test the second system of landing. When the *Vostok-2* had come down low enough to operate the ejection, the cosmonaut's seat was catapulted out of the ship and a bright orange parachute opened over my head.

Cumulus clouds were billowing below. I passed through the thick damp layers and saw the Earth cov-

ered with golden stubble. I recognised the Volga and two towns on its bank, Saratov and Engels. So everything was going exactly as planned—the landing was taking place in the assigned area, in the same part of the country where Yuri Gagarin had returned from space.

The sunlight filtered through a lampshade of clouds. Swaying gently the parachute brought me steadily lower and lower. I felt the refreshing air of the Earth wafted up into my face. Of late I had grown fond of parachute jumping. After the tense seconds of falling, one experiences a blessed sense of peace and tranquillity. This jump too—I had made more than half a century of them—swept away all the fatigue of my day's flight and calmed my nerves. It was a little strange now, after taking in huge parts of continents and oceans, to see the Earth with its horizons narrowed and shrunken. But now the details were distinct. I saw a combine-harvester at work, reaped fields with ricks of straw on them, green patches of woodland and a herd of cattle grazing in a meadow. All this floated by beneath me rather quickly and I realised that there was a strong wind. Not far away I saw a railway line with a goods train moving along it. I calculated that the wind was carrying me towards it. As if I hadn't had enough without landing on the roof of a truck and being carried off God knows where!

The engine-driver and fireman were peering out of their cab and pointing at me. They knew about the flight of the *Vostok-2*, of course, and guessed it was me coming down from the sky. The vivid colour of my parachute and all the equipment I was wearing were different from what would be seen on an ordinary parachute-jumper. Evidently the driver and fireman would have liked to stop the train, but a timetable is a timetable and the train continued its journey.

The *Vostok-2* came down on one side of the railway

line and I, on the other. I was dragged over the stubble by a strong, gusty wind. The earth was soft and cushioned my fall. At last, after so many hours of flight I was back on my native soil. It was warm from the August sun and smelled of fresh grain and straw. How good it was to stand on it, to feel ordinary ground under my feet, to take my first steps! They were as uncertain as when I was a baby learning to walk. How wonderful is land! Neither sea nor sky have anything to compare with it.

During the flight I had got used to doing everything by the clock. I glanced at my watch. It was 10:18 Moscow Time. I quickly reckoned up how long I had spent in flight. Twenty-five hours eighteen minutes. More than a whole day! It was a day that justified my whole life.

When I had slipped off the parachute I looked round. I saw a motorcycle and side-car with three people on it coming along the road in a cloud of dust. They rode up and came rushing over to hug me and pump my hand. They were collective farm tractor-drivers from a nearby field camp. Their faces were radiant. I could hardly make them let go of me.

"Help me to get out of my sky outfit," I said.

They took off my spacesuit quite quickly. Then a car drove up with two men and a woman in it. There was blood on the woman's forehead. Apparently they had driven so fast over the stubble that they had hit a pot-hole. I wanted to help her and said she ought to get a bandage on the cut as soon as possible, but she beamed at me and said: "I'm the first woman to see you on Earth. This is the happiest day in my life."

People came running towards me across the field from all sides. They put me in the car to drive me to the office of the Party District Committee. But I asked them to take me to the ship first. It was on the other



Herman Titov with Young Pioneers



Flowers for his favourite poet

side of the railway line. We dashed over a level-crossing and I saw the *Vostok-2* standing in a field. Some of the meeting party were already busy round it.

I entered the ship, took the log-book, drank some of the water from the supply in the cabin and went off in the same car to the District Committee. There I got through by telephone to Nikita Sergeyevich Khrushchov and reported to him that the flight had been successfully completed, and that the cosmonaut felt well. Nikita Sergeyevich seemed to guess what must be going on inside me and talked to me in a warm, fatherly way. He even said jokingly that my voice sounded as if I had just come back from a wedding instead of from outer space, and called my 25-hour flight a heroic feat.

"You have realised man's dream," he said. "Not so long ago the idea of a man making flights into space was considered an impossible dream. We are proud that you, a Soviet man, a Communist, have accomplished this. You are now no longer a candidate for Party membership. Consider that your probationary period is over. Every minute you spent in space can be counted a year. You have done your period as a candidate for the Party and shown that you are a real Communist and can hold high the banner of Lenin!"

It is hard to convey the emotions I experienced at that moment. I was aware of the very finest shades of feeling. They included boundless joy at this new victory achieved by the Soviet people, and gratitude to the Party and Government that had entrusted me with such a responsible task and assessed so highly my modest contribution to the development of cosmonautics. Nikita Sergeyevich's words about my being able to consider myself a member of the Communist Party made me happier still and I promised myself I would prepare for any new task, no matter how complex.

All of us, cosmonauts, love Nikita Sergeyevich like a

father, and I had thought much about his titanic energy up there, in outer space, when I received his radio message. Comrade Khrushchov is always young. He sometimes calls himself an old man, but how wonderful must be old age that is the admiration of youth! It is a marvel to me how this man, kind, warm-hearted, yet exacting, and gifted with an exceptional memory, finds time for his energetic diplomatic activity and for penetrating deep into the needs of agriculture and industry, for his talks with writers and artists, for careful attention to the training of scientists. And how much Nikita Sergeyevich has done in the field that is closest to cosmonauts—the development of the rocket industry, the organisation of space flights.

“Go and have a rest. You have deserved it,” Nikita Sergeyevich said in conclusion. And then I really felt just how tired I was.

But outside the District Committee office a noisy crowd had gathered. All the local inhabitants were there and, of course, it was impossible not to go out to them. I mounted the platform outside the building.

“The flight has been successful. I have learned a lot. I feel well. I have just spoken to Comrade Khrushchov,” I said, feeling that I should never forget what I had just experienced.

Amid cheers of joy and welcome I was ushered into a car and driven to an aerodrome where a plane from the meeting party's command post was waiting for me. I exchanged warm embraces with political worker Vasily Yakovlevich, a big-hearted man, who has devoted much strength and energy to educating cosmonauts and looking after them in life and everyday matters. It was wonderful to shake hands with many of my other colleagues and to feel myself back in their close and united family. In the plane, doctors Yevgeny Alexeyevich and Andrei Victorovich removed my sky-blue overalls

and all the transducers connected to my body, checked my pulse and blood pressure and put me to bed. The plane took off and I, inexpressibly happy and exhausted, immediately fell asleep.

That day in a small house on the steep bank of the Volga I met Yuri Gagarin, who as usual had shown enviable determination and had flown back in time from the Western Hemisphere. We were surrounded by lots of people, they were all congratulating me. Someone said he divided the success in equal portions between me and those who had built the *Vostok-2*.

I replied that all the glory for this new victory belonged to the Party, the people and, of course, the builders of the spaceship. If there hadn't been a spaceship I shouldn't have been able to fly into space. If there hadn't been Titov, there would have been Ivanov, Petrov, Nikolayev or Sidorov to make the flight. We have thousands of people capable of doing what two first cosmonauts have done. Yuri Gagarin, Cosmonaut No. 3 and I, spent the evening together. We admired the broad sweep of the great Russian river and the blue distances beyond the Volga still gleaming in the sunlight, and listened to the deep hooting of the ships.

A man of iron constitution and equally unshakable composure, Cosmonaut No. 3 asked some questions that no one could have replied to except us. He wanted to know everything, because all we experienced may prove useful to him in a new and perhaps even more complex flight.

After our walk I sat down at a desk. I had to think out my report to the Commander-in-Chief of the Air Force, Chief Marshal K. A. Vershinin. I had reported briefly to him on performance of my task by telephone. What should I recommend for the success of the flight of Cosmonaut No. 3—that was the question.

* * *

The days that followed were full of the wonderful feelings aroused by my return to Moscow, my meeting at the airport with Nikita Sergeyevich Khrushchov and other leaders of the Communist Party and the Soviet Government, with my father, mother, wife and sister, and the people of Moscow, by that tremendous meeting in Red Square, and by my decoration with the Order of Lenin and the Gold Star of a Hero of the Soviet Union.

How can I ever forget those minutes, the happiest in my life, when standing on the platform of the Lenin Mausoleum with Nikita Sergeyevich Khrushchov, who called me and Yuri Gagarin "celestial brothers", we listened to his speech packed with such tremendous optimism and inexhaustible faith in the mighty creative power of our people, the builders of communism.

"The people are the makers of history, the makers of their own happiness," he said. "The better all Soviet people work for the good of society, the sooner we shall achieve the heights of communism and open a broad path into the future for all mankind. We are firmly confident that our people, led by the Communist Party, will, as always, master the tasks that confront them. We were the first people in the world to build socialism, we are the first to explore outer space. Our country is first on the road to communism."

The grand reception in the Kremlin, my meetings with the working people of Moscow, the press conference in the white-columned hall of Moscow University on Lenin Hills, the trip with Yuri Gagarin and other cosmonaut friends of ours to the workers and engineers who built our excellent Soviet spaceships—everything was a joy to me. I talked tirelessly about all I had seen during my flight in the *Vostok-2* and felt I was again experiencing that day in outer space.

The cine film I had taken during the flight was soon



The Earth photographed by Herman Titov from space



This aureole of colours on the boundary between day and night was first seen by Yuri Gagarin. During his flight Herman Titov photographed it

developed. Some of the shots that I had made through the portholes of the *Vostok-2* were published as stills in *Pravda* and other newspapers and magazines. I felt glad that millions of Soviet people had seen these pictures. It was as if they had been able to share with Yuri Gagarin and myself a glimpse of outer space and had the chance of admiring Mother Earth from those distant regions.

From many countries I began to receive invitations to come and visit them and tell them about the flight of the *Vostok-2*, about this new achievement of Soviet science and engineering. The first trip I made was to the German Democratic Republic.

* * *

The sea seems weary of its eternal labour as it laps idly at the sandy shore. What colour is it? Here, at the shore the water is clear, translucent as crystal, and seems to be light-blue. A little further out lies a dark strip, further still it is azure, then comes a great patch of green, like a field of young maize, and right on the horizon a narrow light-blue band merges with the sky. But now a white cloud floats out from behind the mountains and hides the sun and immediately the colours of the smooth surface fade.

"What about another dip," says Yuri Gagarin, with a nod at the sea. He rises from the pebbles and walks towards the water, as always smiling and cheerful.

It is hard to refuse and the next minute we splash into the water amid fountains of spray. We swim far out to sea, float on our backs and gaze up at the sky. Somewhere up there our spaceships plied their courses. Even the great shaggy cloud that is now floating up from the horizon then seemed but a motionless white speck.

Gagarin has his eyes fixed on the sky too. He is silent and thoughtful.

When we get back to the shore, we sit down on the warm stones and go on with our talk. We discuss the things that have happened to us.

As I sit down to complete my notes I think not so much about what has been achieved as about what is still to be done to fulfil my duty in the ranks of the Communist Party. Through the open window I can see the southern night with its almost black sky, strewn with the stars of distant galaxies. The glittering light of these celestial worlds beckons mysteriously. They are waiting for someone to discover them to reward humanity with treasures that scientists can only guess at.

Sufficient time has passed since my twenty-five hours circling the Earth for me to be able to generalise and draw conclusions, to comprehend this event. And now, as I end my notes, I again pause over its meaning. I remember the words of Nikita Sergeyevich Khrushchov when he said after the landing of the *Vostok-2* that Yuri Gagarin and I now held the honourable title of cosmonauts of the U.S.S.R. "But there will be two of you," he warned us, "only till the next flight, and after that there will be more and more new Soviet space pilots. You need have no doubt that your family of cosmonauts will grow and mature in strength."

This will soon come true! I have no doubt that my cosmonaut friends will successfully carry out the plans for exploring outer space that have been drawn up by our Party. The new spaceships, created by the genius of Soviet people, will be piloted by other ordinary Soviet people like myself, like my wonderful friend Yuri Gagarin. Our road leads to new heights.

What has enabled us, Soviet people, Communists, to be first to overcome gravity and break through into space? What could create the powerful rocket that bore us into the broad realms of the Universe? Before me lies a great historic document of our epoch—the Pro-

gramme of the Communist Party of the Soviet Union. Every line of it reveals new prospects, like a searchlight illuminating the great events of modern times that stir all humanity. "Under the socialist system of economy, scientific and technical progress," says the Programme, "enables man to employ the riches and forces of nature most effectively in the interests of the people, to discover new types of energy and to create new materials, to develop means of weather control and to master outer space."

When you read deeply into the meaning of these words, you realise that it was back in the stormy days of October 1917 under the leadership of the great Lenin that we began to build the launching site from which our huge rockets now soar. Two hundred and twenty million Soviet people—they are the force that lifts those rockets into space.

For hundreds, for thousands of years the sky, so infinitely far away, seemed inaccessible to man. Now the regions of space in close proximity to the Earth have been explored and man's searching mind is reaching out further and further into the Universe. Among the people whose reason lighted the way into this mysterious world of stars and planets we remember with great gratitude that modest Russian scientist Konstantin Tsiolkovsky, creator of the first rockets, the first drawings and plans for exploring outer space.

Soviet people are capable of miracles and the whole world knows it. Our talented people have many great accomplishments to their credit. The nature of our miracles lies in ourselves, in our strength, in our invincible faith that the path the people have chosen once and for all of advance towards communism is the only true path of development for human society.

All the people of our planet have called April 12, 1961, the day when the spaceship *Vostok* with a man on board

orbited the Earth in 108 minutes, the beginning of a new era. The first cosmonaut is a citizen of the Union of Soviet Socialist Republics, a Communist. This is no mere coincidence. Only our country, where for the first time in history the creative forces of the people have been given unlimited scope for development, where the mind, feelings and will of the millions are concentrated by the Communist Party, was able to perform what humanity had dreamed of for centuries.

The Great October Revolution swept away former conceptions of historical epochs and made time flow anew. History put into orbit the Soviet artificial Earth satellite. Only a few years were needed for Soviet people to make a thorough study of the regions of space near the Earth, to verify the possibility of human flight in space, to put a pennant on the Moon, to photograph its far side, to send a spaceship in the direction of the planet Venus. In the Declaration of the Central Committee of the C.P.S.U., the Presidium of the Supreme Soviet of the U.S.S.R. and the Government of the Soviet Union to the Communist Party and the peoples of the Soviet Union, to the peoples and governments of all countries, to all progressive mankind, the flight of the *Vostok* is evaluated as an unprecedented victory over the forces of nature, as one of the greatest achievements of science and engineering, a triumph of human reason. In this Declaration it is emphasised that our country, having outstripped all other states, is the first to blaze the trail into outer space.

The successes of Soviet cosmonautics have initiated a tremendous break-through into the Universe. The man who goes into space is no mere passenger, he is an active research worker and experimenter. He can alter the automatic research programme and carry out astronomical, physical, and biological observations and investigation. The possibilities of modern radiotelemetric,



The first cosmonauts Yuri Gagarin and Herman Titov with friends
in the civil air service

Herman Titov and his wife say
good-bye to the friends who saw
them off at a Berlin airport



television and cybernetic apparatus used in cosmonautics are fantastic. There can be no doubt that with its help man will learn to live and work in outer space. This will be a tremendous victory over nature, over its biological laws.

The keys to the regions far beyond this planet have been cut by the working class of the Soviet Union. Inspired by the Communist Party, our people fully realise that only socialist industry can provide the country with all the conditions needed for a great upsurge of the economy, for the steady improvement of the well-being of the working people. During the years of Soviet power dozens of new branches of industry have been created, modern industrial methods have brought harmonious development to the whole of heavy industry. This is the decisive service that has been rendered by our working class, our technical intelligentsia, who are sprung from the people and have their roots among the people.

The space pilots know the mighty strength of the millions of their brothers in labour, they feel the warmth of their hearts. We are confident of the success of space flights because we are equipped for our travels by Soviet scientists, engineers, technicians and workers—our class comrades, who share the views of our Party and are fighting shoulder to shoulder for the realisation of the ideals of communism. When we listened with bated breath to the reports sent by Yuri Gagarin on board the spaceship *Vostok*, we marvelled at the perfect functioning of the intricate apparatus built by the Soviet people. We spoke with profound gratitude of the Soviet people whose brains and skill had created the powerful rockets, built the cosmodrome, and adjusted the mass of subtle instruments and apparatus that were able to lift a man beyond the realms of our planet into space, and then deliver him safe and sound to the assigned area in the Soviet Union.

Yuri Gagarin and I have had the great honour of making the first flights into outer space, of seeing our planet from a height of hundreds of kilometres. We know that we were educated by the Communist Party, brought up by our beloved country. As we rode in the regions of the stars, we felt ourselves envoys of the Soviet people, envoys of all progressive mankind. Yes, of mankind, for Soviet people, led by the Communist Party, are marching in the vanguard, hewing the path to a radiant future. The flights of the Soviet spaceships are a vivid confirmation of the triumph of the immortal ideas of Marxism-Leninism.

Nikita Sergeyevich Khrushchov called us the "celestial brothers". Yes, we are friends and brothers. We were brought together by the clear skies of our country, educated by the Communist Party and the Soviet people. As yet there are only two of us. But Cosmonaut No. 3 is ready for flight. Our other cosmonaut friends are also ready. The Soviet "celestial brotherhood" will grow and multiply. It is capable of more and more complex flights to the stars. Together with all Soviet people we believe and know that, as Nikita Sergeyevich Khrushchov said, "the time is not far distant, when manned spaceships will blaze the way to the Moon, to the planets of the solar system".

We, cosmonauts, are resolved to devote all our energies to Soviet cosmonautics, which serve the cause of peace, the cause of a bright communist future for all mankind.

TO THE READER

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